

**Two new Palaearctic species of the genus *Schroederella* ENDERLEIN,
1920 (Diptera: Heleomyzidae)***

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ABSTRACT. Two Asiatic *Schroederella* species, viz. *Schroederella distincta* and *Schroederella wojciechowskii* from Eastern Russia, are described. The diagnostic characters are provided. Male terminalia are illustrated for both species. Their relationships with other representatives of the genus are discussed. A checklist of all nominal Asiatic species is presented. With 12 original figures.

KEY WORDS: Heleomyzidae, *Schroederella* taxonomy, new species, male terminalia, Palaearctic Region.

INTRODUCTION

The genus *Schroederella* was erected by ENDERLEIN in 1920, based on *Helomyza iners* MEIGEN, 1830, a species recorded from many European countries (WOŹNICA 2014). Regarding the Palaearctic Region, the next five species were described from Asia, in the 1930s by CZERNY (1930, 1931, 1932) and HENDEL (1934). After more than thirty years GORODKOV (1962) synonymized one species, *Schroederella brevisetis* CZERNY, 1932, with *Schroederella iners*, but described a new one – *Schroederella robusta* – from Tajikistan, also based on one male specimen only. OKADOME (1969) described a new species, *Schroederella nipponica*, from Japan, and noticed its similarity to “*iners*”. Two other

* The paper is dedicated to Prof. Waclaw WOJCIECHOWSKI in recognition of his great contribution to the taxonomy and faunistics of Hemiptera.

species were recorded from North America (GILL 1962, GORODKOV 1984) and both are typical Nearctic taxa (as *bona species*). The first reviewers of the genus *Schroederella*, PAPP & CARLES-TOLRÁ (1994) in their paper on Western Palaearctic species, described four new species from Europe, giving a key for the examined species only. Recently, PAPP (2007, 2010) described further new species from the Palaearctic Region, viz. *Schroederella kirylli* PAPP, 2007; *Schroederella media* PAPP, 2007 (both from Hungary) and *Schroederella stylata* PAPP, 2010 from Mongolia. The key to the *Schroederella* species published in 1994 is therefore out of date. Unfortunately, all the species described by CZERNY require revision, so, having analysed the Heleomyzidae material preserved in the Museum of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia, I decided to describe only two new *Schroederella* species (out of the six highlighted during the study), clearly different from all previously described *Schroederella* species from Asia.

Acknowledgements

I am very grateful to Prof. E.P. NARTSHUK (ZIRANSP, St. Petersburg, Russia) for making the material available for study.

MATERIAL AND METHODS

The material considered in the present paper comes from the Museum of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZIRANSP). The male terminalia were cleared in a solution of 10% NaOH and placed in a microvial with glycerine. Details of the male terminalia were obtained in lateral view using a light microscope and computer techniques. Bilaterally symmetrical structures in the species descriptions are cited as singular. Holotype and paratype label data are quoted as they appear: a slash (/) indicates the end of a line of print, two slashes (//) signify data on a further label. The terminology of the external structures and abbreviations of measurements follow those used by WOŹNICA (2003, 2006). For better comparison all the structures illustrated have been magnified to the same scale.

RESULTS

Subfamily Heleomyzinae, BEZZI, 1911

Tribe Heleomyzini BEZZI, 1911

Genus *Schroederella* ENDERLEIN, 1920

Taxonomical remarks

The peculiar chaetotaxy of the head and pleural part of the thorax of *Schroederella* is similar to that in *Acantholeria* GARRETT, 1921 and *Morpholeria* GARRETT, 1921 sensu GORODKOV (1984), which made it difficult to construct identification keys to the generic level (GORODKOV 1970, PAPP 1998), as there was until now no distinct character for distinguishing the genus *Schroederella* from the related taxa. During my studies of the taxonomy of Heleomyzid flies, I found a unique character, namely, a peculiar proepimeral chaetotaxy in all the examined specimens belonging to the genus *Schroederella*. The proepimeron is multi-setulose (but single bristled in *Acantholeria* and *Morpholeria*). Therefore, a short generic diagnosis for *Schroederella* is presented below.

Diagnosis

Schroederella is more closely related to the genus *Acantholeria* than to *Morpholeria*. It differs from the genus *Morpholeria* in the following characters: proepimeron multi-setulose, with 1-2 big bristles and just a few (1-5), often hair-like setulae, head distinctly concave in the lower part, antennae with very long arista (more than three times the length of the first flagellomere). It differs from *Acantholeria* in the proepimeral chaetotaxy (in *Acantholeria* the proepimeron is single bristled only) and the katepisternum with 2-3 big katepisternal bristles. In females the cerci are only haired (unlike the thorn-like and well-developed setulae in *Acantholeria*).

Descriptions

Schroederella distincta sp. nov.

(Figs 1-6)

Diagnosis

First flagellomere orange, arista brownish, long and shortly pubescent only. Palpus wholly orange. Mesonotum and lateral part of thorax of the same colour. Dorsocentral bristles 1+3 not arising from brown dots. Proepimeron with two black bristles and 3 additional setulae, anepisternum with ca 10 small black hairs in the anterior corner. Hind femur with three to four dorsal subapical bristles. Basistylus finger-like, dististylus s-shaped (Fig. 4), cerci broad and dorsally flattened (Figs 2, 3).

Description

Measurements: body length: 7.00 – 7.65 mm (holotype) (Fig. 1). Head ratio: 1.20 – 1.22 (holotype).



1.



7.

Figs 1, 7. 1 – *Schroederella distincta* sp. n., holotype, overall habitus – lateral view;
7 – *Schroederella wojciechowskii* sp. n., holotype, overall habitus – lateral view.



2.



8.

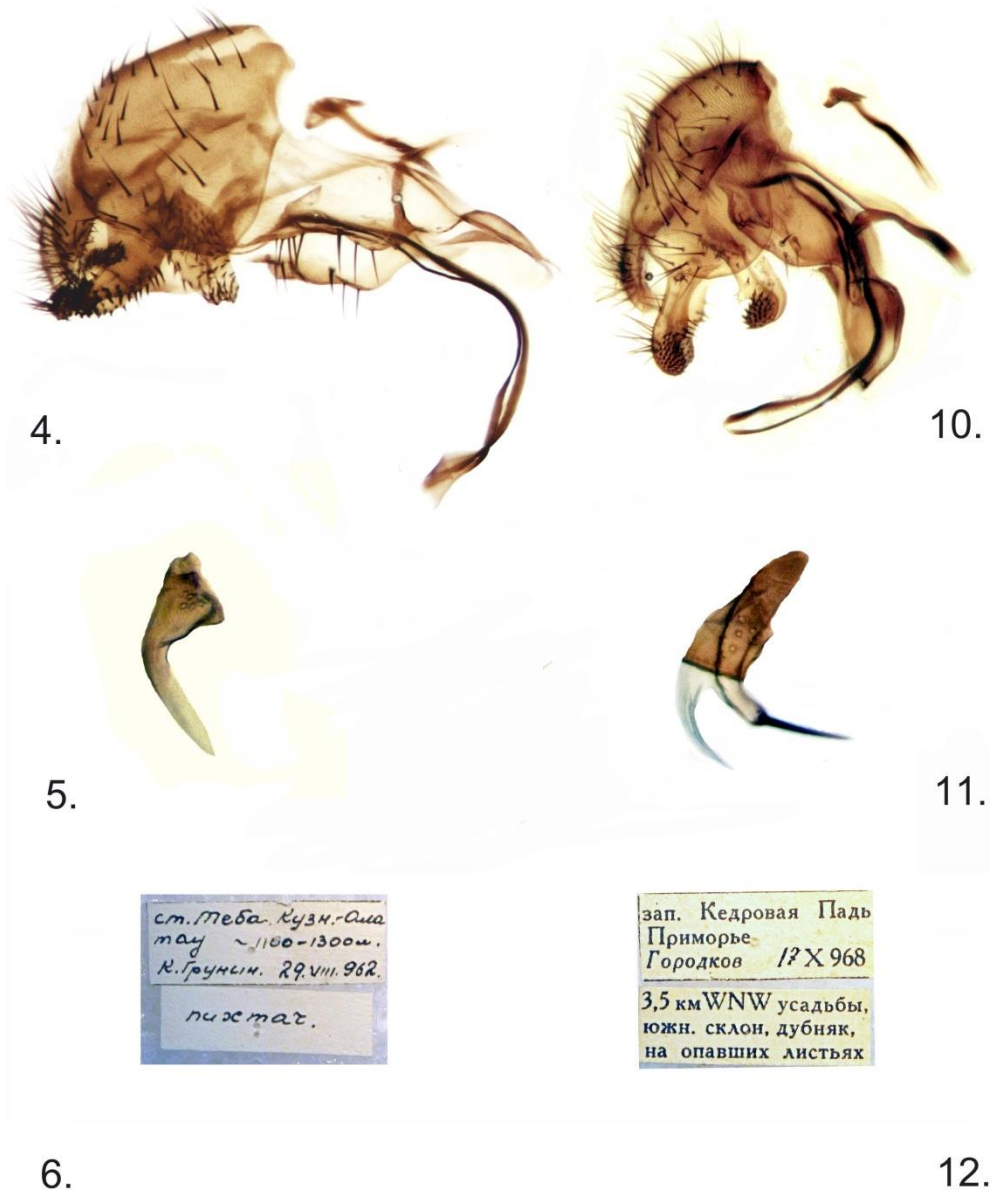


3.



9.

Figs 2, 3, 8, 9. 2 – *Schroederella distincta*, male postabdomen – lateral view; 3 – *S. distincta*, epandrium, dorsal view; 8 – *S. wojciechowskii*, male postabdomen, lateral view; 9 – *S. wojciechowskii*, epandrium, dorsal view.



Figs 4-6, 10-12. 4 – *Schroederella distincta*, male terminalia, lateral view; 5 – *S. distincta*, left postgonite, lateral view; 6 – *S. distincta*, original labels of the holotype specimen; 10 – *S. wojciechowskii*, male terminalia, lateral view; 11 – *S. wojciechowskii*, left postgonite, lateral view; 12 – *S. wojciechowskii*, original labels of the holotype specimen.

Head: frontal plate shortly setulose, and yellowish until the first orbital bristle, the remaining part is orange-brown. Ocellar triangle pale grey dusted. Face and gena pale yellowish, and slightly dusted silver. Anterior orbital bristle ca 0.62 – 0.66 x the posterior one. Genal setulae short and in two irregular rows. Scape and pedicel orange. First flagellomere orange and round with long, dark brown but shortly pubescent arista. Cheek-eye ratio varies from 0.50 to 0.60, flag-cheek ratio ca 0.60. Palpus wholly orange. Proboscis orange-brown.

Thorax: prosternum orange and bare. Basic colour of mesonotum orange. Pale grey dusted, especially along the dorsocentral bristles, and with a thin and rather indistinct dark brown stripe in the middle area between the rows of dorsocentral bristles. Mesonotum shortly setulose, with 6-7 irregularly placed rows of acrostichal setulae. Two pairs of short prescutellar bristles present. Scutellum rounded apically and totally orange. Proepimeron setulose, with 1-2 big black bristles and 3-4 small additional setulae. Anterior corner of anepisternum with ca 8-10 hairs. Katepisternum with big bare central area, with two big black bristles, and sparsely setulose near the katepisternals.

Wing: length: 8.3 – 8.7 mm, width: 2.6 – 2.7 mm. Medial vein ratio ca 1.05 (holotype) – 1.10. Costal spines well developed and distinctly longer than width of costa. Veins brownish, membrane slightly tinged yellowish. Haltere yellowish-orange.

Legs: basic colour – orange. All femora slightly thickened. Fore femur dusted dorsally, with two rows of black bristles anterodorsally, and one row of similar developed bristles posteroventrally. Mid femur with 6 – 8 black and rather stout bristles grouped in two rows anterodorsally. Hind femur with 3-5 dorsal subapical bristles. Mid and hind femora with two rows of stout black thorn-like bristles posteroventrally. All tibiae short haired, with distinct black preapical bristles. Mid tibia distally with three big curved spines, and with two additional small black spines apically. Second and third fore tarsomeres of fore leg flattened and dark brown, remaining segments brownish distally. Tarsomeres of the mid and hind leg orange but the fifth tarsomere and apices of tarsomeres II – IV dark brown. First tarsomere of mid leg with two rows of small spines ventrally. First and second tarsomeres of hind leg rusty brown, with comb-like row of setulae.

Abdomen: totally orange and slightly pale grey dusted, with rather thin but distinct grey stripes at their margins. Tergite V and epandrium orange. Sternites I-V rather indistinctly pale grey dusted only. All tergites short and setulose, with distinct black marginal setae.

Male terminalia: epandrium medium sized and broadened apically, sparsely and shortly setulose. Cerci rather short and broad, dorsally flattened (ca 1/3 of the height of epandrium) and relatively long-haired (Figs 2, 3). The separated apical part shorter than 1/2 of its total length. Basistylus finger-like, dististylus S-shaped (Fig. 3). Hypandrium U-shaped, well sclerotized and with two groups of setulae (3+4) on the lateral surfaces. Thin and long

distiphallus regularly twisted in the basal half part and broadened apically. Ejaculatory apodeme rod-like (Fig. 4). Postgonite bare, regularly curved apically (Fig. 5).

Female unknown.

Type material

Holotype: ♂, *Schroederella/ distincta* / WOŹNICA sp. n. (red), and labelled: st. Teba, Kuzn-Alat / ai, ~1100-1300m / K. GRUNIN 29.VIII [1]962 // piktach // (Fig. 6).

Paratypes: *ibidem*, 1♂ paratype (with two vibrissae on the left side). 1♂, 20 km lu. B. Simonovo, Shitakovski r-n, Angarskaya obl., dubniak [oakwood forest], GRUNIN, 19.VIII.[1]959.

Etymology

The species name is derived from the Latin word *distinguo*, meaning to separate, divide, distinguish, point out. It refers to the distinctive feature of the species, i.e. the structures of the male terminalia.

Distribution

Asian part of Russia, an East Siberian species, known only from the two type localities.

Biology

Unknown.

Remarks

Schroederella distincta sp. n. runs to couplet 3(4) in PAPP & CARLES-TOLRÁ's (1994) key, but in contrast to the *Schroederella iners*, the first flagellomere is wholly orange and the male terminalia are markedly different.

Schroederella wojciechowskii sp. n.
(Figs 7-12)

Diagnosis

First flagellomere round and wholly black with almost bare and blackish arista, in contrast to the orange scape and pedicel. Palpus pale brown, slightly darkened in female. Genal setulae long, and very much enlarged near the base of vibrissa (Fig. 7). Mesonotum and scutellum dark grey. Proepimeron with two big black bristles and 2-3 additional setulae, anepisternum with one bigger and 3 – 4 smaller black hairs in the anterior corner. Hind femur with two dorsal subapical bristles. This is a unique species concerning male terminalia. Basistylus long, curved distally with broad rounded apex covered by thorns, and

with small appendix preapically (Figs 9, 10). Dististylus long and flattened, and hockey-stick-like in shape (Fig. 10). Cerci long and curved laterally (Figs 8, 9).

Description

Measurements: body length: 3.7 – 6.15 mm (♂♂) – 6.2 mm (♀). Head ratio: 1.13 – 1.20.

Head: frontal plate yellowish-brown, covered by long and thin setulae, especially in the anterior half. Ocellar triangle dark grey dusted. Face and gena yellowish-brown, with genal area dusted silver. Hind part of head dark grey. Anterior orbital bristle directed outwards, ca 0.75 – 0.85 x the posterior one. Genal setulae in two irregular rows, long, and near the base of vibrissa extremely enlarged. Scape and pedicel rusty brown. First flagellomere round and black, with blackish, relatively short and almost bare arista. Cheek-eye ratio varies from 0.40 – 0.50 (♂♂) to 0.55 (♀), flag-cheek ratio ca 0.75 – 0.85. Palpus brownish, thin at base and regularly broadened in the apical half. Proboscis dark brown.

Thorax: prosternum ash grey and bare. Mesonotum shortly setulose with 5 – 6 irregularly placed rows of acrostichal setulae. Dorsocentral bristles arising from blackish spots, a thin indistinct blackish stripe between rows of dorsocentrals present. Scutellum rounded apically and totally grey with two pairs of very long scutellar bristles. Proepimeron setulose, with 1 – 2 big black bristles and 3 – 4 small additional setulae. Anterior corner of anepisternum with ca 7 – 9 setulae (one is bigger than the others). Katepisternum with big bare central area, and with three strong, black bristles.

Wing: length: 4.7 – 6.3 mm. Medial vein ratio ca 1.20 – 1.37. Costal spines well developed and distinctly longer than width of costa. Veins brownish, membrane slightly tinged grey. Haltere pale brown.

Legs: darkened, with all femora slightly thickened in males, and bicoloured (blackish-brown) with brown apices. Fore femur blackish ventrally except the base and the 1/3 apical part, with two rows of long black bristles anterodorsally, and one row of similarly developed bristles posteroventrally. Mid femur varies in colour, and is more brownish in the middle part, with two rows of 8-9 black and rather strong bristles anterodorsally. Hind femur with 2 dorsal subapical bristles only. Mid and hind femora with two rows of stout black thorn-like bristles posteroventrally. All tibiae, shortly haired only, rusty brown, with distinct black preapical bristles. Male mid tibia with three big black and curved spines apically, and with two to three small spines additionally. First tarsomere of fore leg dark brown apically. II-V tarsomeres of fore leg flattened and dark brown. Tarsomeres III-V of the mid leg and tarsomeres II-V of hind one dark brown. Remaining segments darkened apically. First tarsomere of mid leg with two rows of small black spines ventrally. First and second tarsomere of hind leg with rusty brown and comb-like row of setulae ventrally.

Abdomen: totally dark grey in both sexes, with distinct brownish stripes at their margins (segments II-IV in female, and II-V in males). Male tergite VI brown. Epandrium orange-brown.

Male terminalia: Epandrium medium sized and broadened apically, sparsely and shortly setulose (Fig. 9). Cerci long and curved laterally (Figs 8, 9). The separated apical part ca 1/2 of its total length (Fig. 9). Basistylus elongated, curved distally, with broad rounded apex covered by thorns, and with small appendix preapically (Fig. 10). Dististylus long and flattened, hockey-stick-like in shape (Figs 8, 9). Cerci long and curved laterally. Hypandrium U-shaped, well sclerotized, with two groups of setulae (3+5) on the lateral surfaces. Distiphallus long and curved, not broadened apically. Ejaculatory apodeme rod-like (Fig. 10). Postgonite setulose (Fig. 11).

Female terminalia: not dissected, cerci typical for the genus, haired only.

Etymology.

The new species is named in honour of my older colleague, my first teacher in entomology, Professor Waclaw Wojciechowski, an aphid specialist, and the supervisor of my master's thesis during my studies at the University of Silesia in Katowice.

Type material

Holotype: ♂, *Schroederella/ wojciechowskii* / WOŹNICA sp. n. (red). Other labels: Zap. Kedrovaia Pad / Primorye / GORODKOV / 17.X. [1]968 // 3,5km WNW usadby / iuzhn sklon, dubniak / na opavshikh listiakh (Fig. 12).

Paratypes: 4♂♂, 1♀, *ibid.*, 17.X. [1]968.; 5♂♂, *ibid.* (with other data: 18.X. [1]968).

Distribution

Far East (Russia, Primorsky Krai).

Biology

Unknown.

Remarks

S. wojciechowskii sp. n. is a unique species, and no relatives were found among any of the *Schroederella* species hitherto described.

Checklist of the Asian species of the genus *Schroederella* ENDERLEIN, 1920:

- *brevisetis* CZERNY, 1932 (Mongolia).
- *distincta* WOŹNICA, 2015 (Russia).
- *nigra* (CZERNY, 1931) (Turkmenistan).

- *nipponica* OKADOME, 1969 (Japan).
- *pectinulata* (CZERNY, 1931) (China).
- *robusta* GORODKOV, 1962 (Tadjikistan).
- *segnis* CZERNY, 1930 (China).
- *svenhedini* HENDEL, 1934 (China).
- *wojciechowskii* WOŹNICA, 2015 (Russia).

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Received: 16 July 2015

Accepted: 3 August 2015