Vestnik zoologii, **49**(2): 113–118, 2015
DOI 10.1515/vzoo-2015-0012

DE GRUYTER OPEN

UDC 595.773.4

THE FIRST RECORDS OF THE SKIPPER FLIES (DIPTERA, PIOPHILIDAE) FROM UKRAINE

A. V. Misiachna[1,3], V. A. Korneyev[2]

[1]*Taras Shevchenko National University of Kyiv,*
Volodymyrska str., 60, Kyiv, 01033 Ukraine
E-mail: anyamisia@gmail.com
[2,1]*Schmalhausen Institute of Zoology, NAS of Ukraine*
vul. B. Khmelnytskogo, 15, Kiev, 01601 Ukraine
E-mail: valery.korneyev@gmail.com
[3]*Corresponding author*

The First Records of the Skipper Flies (Diptera, Piophilidae) from Ukraine. **Misiachna, A. V., Korneyev, V. A.** — Eight species of the family Piophilidae are found in the mainland Ukraine. Five of them, *Allopiophila luteata* (Haliday, 1833), *Parapiophila vulgaris* (Fallén, 1820), *Protopiophila latipes* (Meigen, 1838), *Stearibia nigriceps* (Meigen, 1826), and *Neottiophilum praeustum* (Meigen, 1826), are recorded from the first time from Ukraine. Two species, *Mycetaulus bipunctatus* (Fallén, 1823) and *Prochyliza nigrimana* (Meigen, 1826), have been previously recorded only from Crimea.

Key words: Diptera, Piophilidae, Ukraine, first records.

Первые находки сырных мух, или прыгунов (Diptera, Piophilidae) из Украины. **Мисячна А. В., Корнеев В. А.** — На материковой части Украины было найдено восемь видов из семейства Piophilidae, пять из которых: *Allopiophila luteata* (Haliday, 1833), *Parapiophila vulgaris* (Fallén, 1820), *Protopiophila latipes* (Meigen, 1838), *Stearibia nigriceps* (Meigen, 1826) и *Neottiophilum praeustum* (Meigen, 1826), — впервые отмечены в Украине. Два вида, *Mycetaulus bipunctatus* (Fallén, 1823) и *Prochyliza nigrimana* (Meigen, 1826), ранее были отмечены только из Крыма.

Ключевые слова: Diptera, Piophilidae, Украина, первые находки.

Introduction

Piophilidae are a small family of the acalyptrates (Diptera Cyclorrhapha) usually assigned to the superfamily Tephritoidea and including about 80 species worldwide (McAlpine, 1977; Ozerov, Norrbom, 2010) and 29 species in Europe (Ozerov, 2013). The adults are feeding in decaying mushrooms or animal matter, such as carrion, dried fish, or some sorts of cheese stored in cellars or as bird nestlings' ectoparasites (see Ferrar, 1987 for further references), and even have been found on the exhumed remains of Egyptian mummies (Cockburn et. al., 1975). In Central European countries, such as Germany, Czech Republic, and Slovakia, the family is represented by 11–16 species, and in the central part of European Russia by 5 species (Ozerov, 2013). At the same time, the only known records of the skipper flies from Ukraine were *Piophila casei* (Linnaeus, 1761) from Kaniv (Cherkasy Region), *Prochyliza nigrimana* (Meigen, 1826) (as *Piophila*) and *Mycetaulus bipunctatus* (Fallén, 1823) listed from Crimea (Stackelberg, 1970 a) without further references to material. Otherwise, most species has not been recorded from the mainland Ukraine at all. While trapping the flies on carrion in the vicinities of Kyiv, a vast material on the skipper flies was collected by the authors; additional material from Ukraine was found in the collection of the I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine. Five of them are recorded for the first time from Ukraine.

Material and methods

The specimens listed in this paper are deposited in the I. I. Schmalhausen Institute of Zoology, Kyiv, Ukraine (SIZK).

Classification of the family is adopted from McAlpine (1977) and nomenclature follows Ozerov (2013).

The most comprehensive key by Merz (1996) was used to identify Ukrainian species, with supplements from the article by Ozerov, Bartak (1993), monographs and keys by Hennig (1943) and Zuska, Laštovka (1965).

Morphological terminology generally follows J. F. McAlpine (1977).

Subfamily Piophilinae

Allopiophila luteata (Haliday, 1833) (fig. 1, *1–2*)

Haliday, 1833: 169; Stackelberg, 1970 a: 217 (*Piophila*); Hennig, 1943: 41; Zuska, Laštovka, 1965: 152 (*Piophila* (*Allopiophila*)); McAlpine, 1977: 31, 32; Zuska, 1984: 235; Merz, 1996: 347 (*Allopiophila*).

Material. Ukraine, Kiev, Lukjanivka Park, Inst. PAG, 9.05.1999, 8 ♂ (V. Korneyev) (SIZK).

Distribution. Europe: Great Britain, France, the Netherlands, Sweden, Denmark, Finland, NW Russia, Germany, Poland, Czech Republic, Hungary (Zuska, 1984); Switzerland (Merz, 1996); North America: Canada, USA (McAlpine, 1977). First record from Ukraine.

Diagnosis. This species can be recognized from the combination of frons yellow above lunule, pruinose yellow or brown propleuron, yellow postpronotal lobe and notopleural triangle, and one pair of dorsocentral setae.

Mycetaulus cf. *bipunctatus* (Fallén, 1823) (fig. 1, *3–4*)

Fallén, 1823: 3 (*Geomyza*); Hennig, 1943: 46 (*Piophila* (*Mycetaulus*)); Bukowski, 1940: 203; Zuska, Laštovka, 1965: 154; Stackelberg, 1970 a: 218; McAlpine, 1977: 29; Zuska, 1984: 237; Merz, 1996: 348; Ozerov, 1999: 535 (*Mycetaulus*).

Material. Ukraine, Kiev, on horse-shoe fungus, 26.09.2010, 1 ♂ (V. Korneyev) (SIZK).

Distribution. Europe: Czech Republic, Great Britain, France (mainland), Finland, Germany, the Netherlands, Poland, Slovakia, Sweden, Switzerland (Ozerov, 2013); Russia (European Territory; Caucasus; Far East) (Ozerov, 1999); Ukraine (Crimea) (Bukowski, 1940); Asia: Kyrgyzstan (Ozerov, 1999). First record from mainland Ukraine.

Diagnosis. This species can be recognized from having wing with large brown apical fleck (fig. 1, *4*) with brownish yellow mesonotum and black abdomen (fig. 1, *3*), with

Fig. 1. *Allopiophila luteata* (*1–2*) and *Mycetaulus bipunctatus* (*3–4*): *1, 3* — habitus, left; *2* — head and mesonotum, dorsal; habitus, dorsal and right.

Рис. 1. *Allopiophila luteata* (*1–2*) и *Mycetaulus bipunctatus* (*3–4*): *1, 3* — общий вид, слева; *2* — голова и среднеспинка, сверху; *4* — общий вид, справа и сверху.

strong orbital, well developed postpronotal and presutural supra-alar, and two pairs of katepisternal setae.

Remarks. There are two cryptic species in the Nearctic Region (S. Rochefort, pers. comm.), which can be distinguished only from male genitalic characters, and since it is not clear if both of them are present or absent also in Europe, we identify the specimen provisionally.

Parapiophila vulgaris (Fallén, 1820) (fig. 2, *1–2*)

Fallén, 1820: 9; Stackelberg, 1970 a: 218 (*Piophila*); Hennig, 1943: 42; Zuska, Laštovka, 1965: 152 (*Piophila* (*Allopiophila*)); McAlpine, 1977: 48; Zuska, 1984: 238; Merz, 1996: 351 (*Parapiophila*).

Material. Ukraine: Goverla, 16.08.1979, 1 ♂; Kyiv, 6.05.1997, 1 ♂ (V. Korneyev), Kyiv: Pushkin Park, 8.05.1996, 1 ♂ (V. Korneyev), Lysa Hora, 11.05.1997, 5 ♂ (V. & S. Korneyev), Lukyanivka, park of the Institute of Pediatry, 9.05.1999, 2 ♂, 1 ♀, idem, Kmytiv Yar, on bone, 14.06.1998, 7 ♂, 9 ♀ (V. Korneyev); Kyiv Region, Vita-Poshtova village, 50°18′ N 30°22′ E, on pig bones, 14.08.2013, 3 ♂ (Misiachna) (SIZK).

Distribution. Europe: Czech Republic, Denmark (Faroe Is.), Finland, France, Germany, Hungary, Iceland, the Netherlands, Norway, Poland, Russia, Slovakia, Sweden, Switzerland; Nearctic Region (Ozerov, 2013). First record from Ukraine.

Diagnosis. This species can be recognized from the combination of yellow frons (above lunule), parafacial and gena, white microtrichose black propleuron, black postpronotal lobe and notopleural triangle, and one pair of dorsocentral setae. Sternite 6 of male has 2 well sclerotized "teeth" medially on posterior margin (Rochefort, Wheeler 2015).

Piophila casei (Linnaeus, 1761) (fig. 2, *3–4*)

Linnaeus, 1761: 456; Viktorov-Nabokov, 1963: 30; Stackelberg, 1970 a: 216; McAlpine, 1977: 43, 44; Zuska, 1984: 238; Merz, 1996: 353 (*Piophila*); Hennig, 1943: 26; Zuska, Laštovka, 1965: 148 (*Piophila* (*Piophila*)).

Material. Ukraine: Cherkasy Region, Kaniv, Pekari village, in a pigsty, 24.07.1957, 1 ♂; from containers, 3.05.1961, 1 ♂; on windows, 15.05.1964, 1 ♂ (Viktorov) (SIZK).

Distribution. Cosmopolitan. Europe: Great Britain, France, the Netherlands, Sweden, Denmark, Finland, NW Russia, Germany, Poland, Czech Republic, Hungary (Zuska, 1984); Switzerland (Merz, 1996); North America: Canada, USA (McAlpine, 1977).

Fig. 2. *Parapiophila vulgaris* (*1–2*) and *Piophila casei* (*3–4*): *1, 3* — habitus, left; *2, 4* — head and mesonotum, dorsal.

Рис. 2. *Parapiophila vulgaris* (*1–2*) и *Piophila casei* (*3–4*): *1, 3* — общий вид, слева; *2, 4* — голова и среднеспинка, сверху.

D i a g n o s i s. This species can be recognized by the mesonotal scutum with three longitudinal rows of stronger setulae on small tubercles (not present in other piophilids), but no presutural supra-alar seta; fore and hind femora mostly black; thoracic spiracle small and slit-like.

Prochyliza nigrimana (Meigen, 1826) (fig. 3, *1*)

Meigen, 1826: 396; Bukowski, 1940: 203; Stackelberg, 1970 a: 217 (*Piophila*); Hennig, 1943: 31; Zuska, Laštovka, 1965: 152 (*Piophila* (*Liopiophila*)); McAlpine, 1977: 45; Zuska, 1984: 238; Merz, 1996: 353 (*Prochyliza*).

M a t e r i a l. Ukraine: Kyiv Region: Vita-Poshtova village, 50°18′ N 30°22′ E, on pig bones, 6.05.2013, 33 ♂, 6 ♀; 12.05.2013, 3 ♂; 19.05.2013, 2 ♂, 3 ♀; 26.05.2013, 11 ♂, 5 ♀; 1.06.2013, 5 ♂, 1 ♀; 1.07.2013, 25 ♂, 3 ♀; 6.07.2013, 9 ♂; 20.07.2013, 8 ♂ (Misiachna).

D i s t r i b u t i o n. Europe: Belgium, Britain, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Poland, Portugal (Azores, Madeira), Russia, Slovakia, Spain (Canary Is.) (Ozerov, 2013), Ukraine (Crimea) (Bukowski, 1940); Bosnia & Herzegovina, Romania, Switzerland (Merz, 1996); Lebanon, Syria (Duda, 1924), Kazakhstan, Uzbekistan (Merz, 1996); Nearctic and Neotropical Regions (Zuska, 1984).

D i a g n o s i s. This species can be recognized from the combination of dorsally microtrichose costal cell, orbital setae very short, not differing from other setulae of frons, frons and anterior fronto-orbital plates yellow, postpronotal, presutural supra-alar, and katepisternal setae lacking; antenna and usually fore coxa yellow.

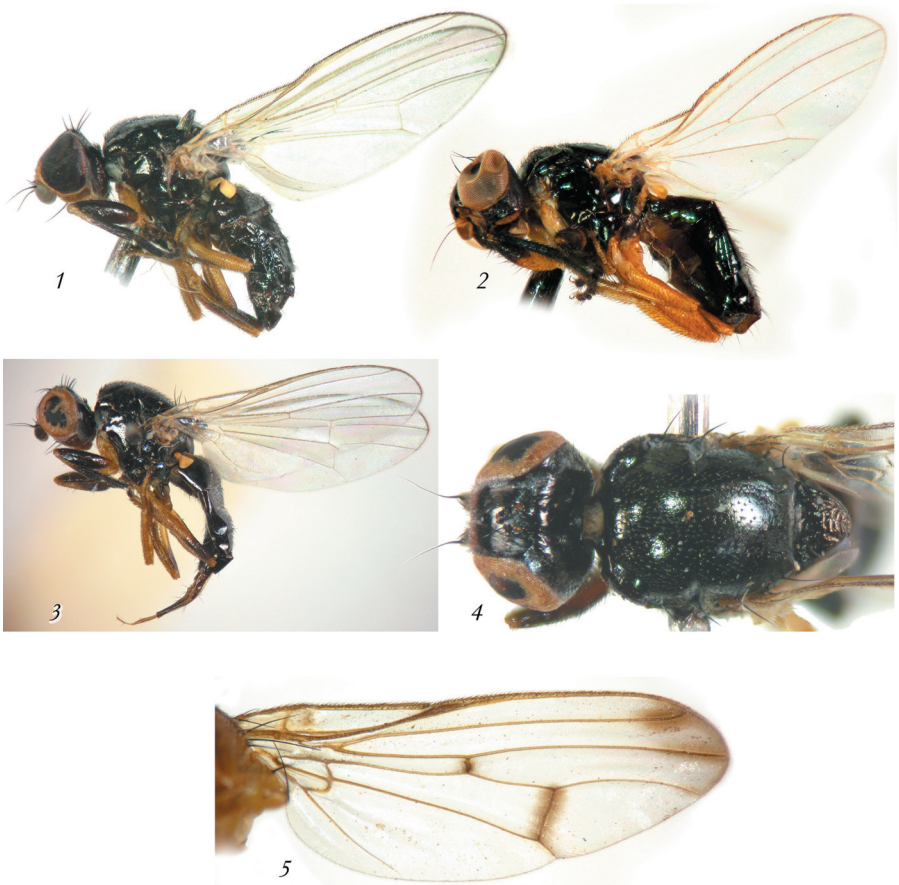

Fig. 3. *Prochyliza nigrimana* (*1*), *Protopiophila latipes* (*2*), *Stearibia nigriceps* (*3–4*), and *Neottiophilum praeustum* (*5*): *1, 3* — habitus, left; *2, 4* — head and mesonotum, dorsal, *5* — wing.

Рис. 3. *Prochyliza nigrimana* (*1*), *Protopiophila latipes* (*2*), *Stearibia nigriceps* (*3–4*) и *Neottiophilum praeustum* (*5*): *1, 3* — общий вид, слева; *2, 4* — голова и среднеспинка, сверху; *5* — крыло.

Protopiophila latipes (Meigen, 1838) (fig. 3, *2*)

Meigen, 1838: 360 (*Piophila*); Hennig, 1943: 35 (*Piophila* (*Protopiophila*)); Zuska, Laštovka, 1965: 153; McAlpine, 1977: 38; Zuska, 1984: 239; Merz, 1996: 353; Ozerov, 1999: 536 (*Protopiophila*).

Material. Ukraine, Kiev Region, Vita-Poshtova village, 50°18′ N 30°22′ E, on pig bones, 26.05.2013, 4 ♂, 1 ♀; 1.06.2013, 17 ♂, 1 ♀; 6.07.2013, 2 ♂ (Misiachna) (SIZK).

Distribution. Europe: Czech Republic, France (mainland and Corsica), Germany, Greece, Hungary, Poland, Russia, Slovakia, Switzerland (Ozerov, 2013); Croatia (Hennig, 1943); Far East Russia: Amur Region (Ozerov, 1999), Nearctic, Oriental, and Australasian Regions (McAlpine, 1977). First record from Ukraine.

Diagnosis. This species can be recognized from the combination of orbital and two postpronotal seta present, frons and pleura entirely black, wing hyaline, fore coxa and basal 2/3 of fore femur yellow, with widened and flattened black palp and fore tarsomeres.

Stearibia nigriceps (Meigen, 1826) (fig. 3, *3–4*)

Meigen, 1826: 397; Zuska, Laštovka, 1965: 150 (*Piophila* (*Stearibia*)); McAlpine, 1977: 42; Zuska, 1984: 239; Merz, 1996: 353 (*Prochyliza*). — *foveolata* Meigen, 1826: 396; Stackelberg, 1970 a: 216 (*Piophila*); Hennig, 1943: 28 (*Piophila* (*Stearibia*)).

Material. Ukraine: Kaniv, on meat, 27.05.1959, 1 ♂, 1 ♀ (Viktorov); Chernivtsy Region, Stavchany village, 18.06.1959, 2 ♂ (Viktorov), Kyiv, 6.05.1997, 5 ♂, 2 ♀; idem, Lysa Hora, 11.05.1997, 6 ♂; idem, Pushkin Park, 8.05.1996, 8 ♂, 3 ♀; idem, Darnytsya, on dog′s corpse, 30.04.2003, 4 ♂, idem, Ukraine, Kiev, Lukyanivka: Kyrylivskyj Yar, 8.06.2003, 6 ♂ (V. Korneyev); Kyiv Region, Vita-Poshtova village, 50°18′ N 30°22′ E, on pig bones, 6.05.2013, 1 ♀; 26.05.2013, 1 ♀ (Misiachna) (SIZK).

Distribution. Great Britain, Czech Republic, Finland, France (mainland and Corsica), Germany, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Sweden, Switzerland) (Ozerov, 2013); Croatia, Montenegro, Slovenia (Hennig, 1943); "Caucasus" (Duda, 1924); Far East Russia (Amur Region) (Ozerov, 1999); Nearctic Region, Neotropical Region (Peru, Chile) (McAlpine, 1977). First record from Ukraine.

Diagnosis. This species can be recognized from the combination of strongly shining anepisternum and postpronotal, presutural supra-alar, and katepisternal setae lacking; frons entirely black, without differentiated orbital setae.

Subfamily Neottiophilinae

Neottiophilum praeustum (Meigen, 1826) (fig. 3, *5*)

Meigen, 1826: 169 (*Dryomyza*); Czerny, 1930: 10; Stackelberg, 1970 b: 219; McAlpine, 1977: 21; Soós, 1984: 241; Merz, 1996: 349 (*Neottiophilum*).

Material. Ukraine, 17 km NW Cherkasy, 2.05.1988, 1 ♂ (head missing) (Zrazhevsky) (SIZK).

Distribution. Europe: Austria, Great Britain, France, NW Russia, Germany, Switzerland (Ozerov, 2013). First record from Ukraine.

Diagnosis. This species can be easily recognized from having patterned wing (fig. 3, *5*) with vein R_1 setulose apically, and presence of three or four katepisternal setae.

Remarks. Ectoparasite on nestlings in the nests of passerine birds (Czerny, 1930).

Discussion

Of the 29 species of Piophilidae known to occur in Europe (Ozerov, 2013), eight are recorded from Ukraine; of them, only three were known here before, and additional five species are collected and recorded for the first time from Ukraine. In total, up to 16–17 species (at least all species known from Czech Republic) can be expected to occur in Ukraine, with some additional, mostly rare species restricted to Forest zone and Carpathian region to be found.

This paper is a part of a bachelor diploma project of the first author. We thank A. L. Norrbom (Washington, D.C., USA) and S. Rochefort (Ste-Anne-de-Bellevue, Canada) for their valuable comments and corrections.

References

Bukowski, W. List of the dipteran insects collected in the Crimean Nature Reserve // Proceedings of the Crimean Nature Reserve. — 1940. — **2**. — P. 189–216. — Russian: *Буковский, В.* Список двукрылых насекомых, собранных в Крымском заповеднике // Труды Крымского государственного заповедника.

Cockburn, A., Barraco, R. A., Reymon, T. A., Peck, W. H.. Autopsy of an Egyptian mummy // Science. New Ser. — 1975. — **187**. — P. 1155–1160.

Czerny, L. 38 a. Dryomyzidae und 38 b. Neottiophilidae // Die Fliegen der palaarktischen Region / Ed. E. Lindner. — Stuttgart : E. Schweizerbart. Verl., 1930. — Bd 5, Lfg. 47, 54. — 15 S.

Fallén, C. F. Opomyzides Sveciae. — Lundae, 1820. — 12 p.

Fallén, C. F. Geomyzides Sveciae. — Lundae, 1823. — 8 p.

Ferrar, P. A Guide to the Breeding Habits and Immature Stages of Diptera Cyclorrhapha / Entomonograph 8, pt. 1. — Leiden : E. J. Brill, 1987. — 478 p.

Haliday, A. H. Catalogue of Diptera occurring about Holywood in Downshire // Entomoligical Magazine. — 1833. — **1** (2). — P. 147–180.

Hennig, W. 40. Piophilidae // Die Fliegen der palaarktischen Region / Ed. E. Lindner. — Stuttgart : E. Schweizerbart. Verl., 1943. — Bd 5, Lfg. 151. — 52 + III S.

Linnaeus, C. Fauna sveciae sistens animalia Sveciae regni. — Stockholmiae, 1761. — 578 p.

McAlpine, J. F. A revised classification of the Piophilidae, including "Neottiophilidae" and "Thyreophoridae" (Diptera : Schizophora) // Memoirs Entomol. Soc. Canada. — 1977. — **103**. — P. 1–66.

Meigen, J. W. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. — Hamm, 1826. — Bd 5. — XII + 412 S.

Meigen, J. W. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. — Hamm, 1838. — Bd 7. — XII + 434 S.

Merz, B. Die Piophilidae (Diptera) der Schweiz mit Beschreibung einer neuen Art // Mitteilungen der Schweizerischen Entomologischen Gesellschaft. — 1996. — **69**. — S. 345–360.

Ozerov, A. L. 75. Fam. Piophilidae // Keys to insects of Russian Far East / Ed. P. A. Lehr. — Vladivostok : Dal'nauka, 1999. — Vol. 6, Pt. 1: Diptera and Siphonaptera. —P. 534–537. — Russian : *Озеров А. Л.* 75. Сем. Piophilidae. Определитель насекомых дальнего востока России. Т. 6. Ч. 1.

Ozerov, A. L. Fauna Europaea: Piophilidae / Coord. T. Pape. Fauna Europaea: Diptera. Fauna Europaea version 2.6, 2013. — http://www.faunaeur.org. Accessed on 20.02.2015.

Ozerov, A. L., Bartak, M. Two new palaearctic species of Piophilidae (Diptera) // Russian Entomological Journal. — 1993. — **2**(1). — P. 73-76.

Ozerov, A. L., Norrbom, A. L. 64. Piophilidae (skipper flies) // Manual of Central American Diptera. Vol. 2 / Eds B. V. Brown, A. Borkent, J. M. Cumming et al. — Ottawa : NRC Research Press, 2010. — P. 865–869.

Rochefort, S., Wheeler, T. A. Diversity of Piophilidae (Diptera) in northern Canada and description of a new Holarctic species of Parapiophila McAlpine // Zootaxa. — 2015. — **3925**(2). — P. 229–240.

Soós, Á. Family Neottiophilidae // Catalogue of Palaearctic Diptera. Vol. 9. Micropezidae — Agromyzidae / Eds Á. Soós, L. Papp. — Budapest : Akadémiai Kiadó, 1984. — P. 241–242.

Stackelberg, A. A. 71. Fam. Piophilidae // Keys to Insects of European Territory of USSR. V. Diptera, Siphonaptera. Pt. 2. — Leningrad : Nauka, 1970 a. — P. 216–218. — Russian : *Штакельберг, А. А.* 71. Сем. Piophilidae // Определитель насекомых европейской части СССР. V. Двукрылые, блохи. Ч. 2.

Stackelberg, A. A. 73. Fam. Neottiophilidae // Keys to Insects of European Territory of USSR. V. Diptera, Siphonaptera. Pt. 2. — Leningrad : Nauka, 1970 b. — P. 219-220. — Russian : *Штакельберг, А. А.* 73. Сем. Neottiophilidae // Определитель насекомых европейской части СССР. V. Двукрылые, блохи. Ч. 2.

Viktorov-Nabokov, O. V. On the study of synanthropic flies in the valley of Middle Dnipro River // Materials on the study of fauna and ecology of insects in the central regions of the wood-and-steppe of Ukraine. — Kiev : Kiev University Publ., 1963. — P. 18–38. — Russian : *Викторов-Набоков, О. В.* К изучению синантропных мух долины среднего течения р. Днепра // Материалы к изучению фауны и экологии насекомых центральных районов Лесостепи Украины.

Zuska, J. Family Piophilidae // Catalogue of Palaearctic Diptera. Vol. 9. Micropezidae — Agromyzidae / Eds Á. Soós, L. Papp. — Budapest : Akadémiai Kiadó, 1984. — P. 234–239.

Zuska, J., Laštovka, P. A review of the Czechoslovak species of the family Piophilidae, with special reference to their importance to food industry (Diptera, Acalyptrata) // Acta Entomologica Bohemoslovaca. — 1965. — **62.** — P. 141–157.

Received 27 February
Accepted 24 March