

UDC 595.773.4(477)

MINING FLIES OF THE GENUS *OPHIOMYIA* (DIPTERA, AGROMYZIDAE) OF EASTERN UKRAINE AND ADJACENT TERRITORIES: REVIEW OF THE SPECIES WITHOUT A FASCICULUS

Yu. A. Guglya

*Kharkiv Museum of Nature,
Trinkler str., 8, Kharkiv, 61022, Ukraine
E-mail: ptero@inbox.ru*

Mining Flies of the Genus *Ophiomyia* (Diptera, Agromyzidae) of Eastern Ukraine and Adjacent Territories: Review of the Species Without a Fasciculus. Guglya Yu. A. — Mining flies of the genus *Ophiomyia* Braschnikov, 1897 occurring in the eastern part of Ukraine and some bordering regions are reviewed. In this paper, twelve species without fasciculus in both females and males, are described and figured, including *Ophiomyia adunca* Guglya, sp. n. and *O. vanyushai* Guglya, sp. n. Information on distribution, host plants and bionomics of each species is provided. A key to species of *Ophiomyia* known to occur in Ukraine is compiled.

Key words: Agromyzinae, *Ophiomyia*, fauna, Ukraine, key, new species.

Минирующие мушки рода *Ophiomyia* (Diptera, Agromyzidae) востока Украины и прилегающих территорий: обзор видов без фасцикулюса. Гугля Ю. А. — Приведены иллюстрированные описания 12 видов рода *Ophiomyia* Braschnikov, 1897 без фасцикулюса (как у самцов, так и у самок), включая *Ophiomyia adunca* Guglya, sp. n. и *O. vanyushai* Guglya, sp. n. Составлены таблицы для определения видов, обнаруженных на изучаемой территории, а также сведения о распространении, кормовых растениях и особенностях биологии.

Ключевые слова: Agromyzinae, *Ophiomyia*, фауна, Украина, таблицы для определения видов, новые виды.

Introduction

Apart from the large group of species with a well-developed fasciculus (Guglya, 2013), several species assigned to *Ophiomyia*, which have not such a structure, are reviewed and described below. In this study 12 species of the genus *Ophiomyia* are described and figured, including *Ophiomyia adunca* Guglya, sp. n. and *O. vanyushai* Guglya, sp. n. A key to all Ukrainian species of *Ophiomyia* described in this and previous papers (Guglya, 2013) is provided in the end of the paper.

Material and methods

Material was collected in 38 localities of eastern and southeastern Ukraine during 2009–2013. Adults were collected mainly by sweeping. Dissected genitalia were macerated in KOH, washed, examined in glycerol, and stored in a microvial pinned together with the fly specimen. Some adults were reared from larva using the methods as described by Guglya (2010). Identification was primarily based on the keys by Černý (1994), Pakalniškis (1998) and Spencer (1964, 1976, 1990). Unless otherwise indicated, all material was collected by the author and is deposited in the collection of Kharkiv Museum of Nature (KMN).

Morphological terminology follows Spencer (1987).

Abbreviations in text: ac — acrostichal setulae; dc — dorso-central seta; frorb sta — fronto-orbital setula; fr s — frontal seta; orb s — orbital seta.

Results and discussions

List of locations of collected material. **Balaklea** — Ukraine, Kharkiv Region (49°25' N, 36°50' E); **Borisovka** — Russia, Belgorod Region, Natural Reserve “Belogorye” (50°35' N, 35°58' E); **Botanical Garden** — Ukraine, Kharkiv (50°01' N, 36°14' E); **Bukino** — Ukraine, Kharkiv Region (49°07' N, 37°24' E); **Dvorichna** — Ukraine, Kharkiv Region (49°51' N, 37°40' E); **Eskhar** — Ukraine, Kharkiv Region (49°48' N, 36°36' E); **Haydary** — Ukraine, Kharkiv Region, The National Nature Park “Homilshanski Lisy” (49°37' N, 36°19' E); **Gatishche** — Ukraine, Kharkiv Region (50°18' N, 36°51' E); **Kamenka** — Ukraine, Kharkiv Region, The National Nature Park “Dvorechanskiy” (49°59' N, 37°53' E); **Kharkiv** — Ukraine, centre (50°00' N, 36°14' E); **Kochetok** — Ukraine, Kharkiv Region (49°51' N, 36°43' E); **Krasnoye** — Ukraine, Kharkiv Region, The National Nature Park “Dvorechanskiy” (49°56' N, 37°47' E); **Krinichnoye** — Ukraine, Kharkiv Region (49°27' N, 36°45' E); **Kuripchine** — Ukraine, Mykolayiv Region, The National Nature Park “Buzkiy Gard” (49°59' N, 31°00' E); **Kuzemin** — Ukraine, Sumy Region, The National Nature Park “Getmanskiy” (50°08' N, 34°40' E); **Liman** — Ukraine, Kharkiv Region (49°35' N, 36°28' E); **Lubotin** — Ukraine, Kharkiv Region (49°56' N, 35°57' E); **Mala Volchja** — Ukraine, Kharkiv Region (50°21' N, 37°15' E); **Novodruzhesk** — Ukraine, Donetsk Region (48°59' N, 38°21' E); **Ogurtsovo** — Ukraine, Kharkiv Region (50°18' N, 36°49' E); **Orchik** — Ukraine, Kharkiv Region (49°09' N, 35°01' E); **Petrivka** — Ukraine, Lugansk Region (48°47' N, 39°16' E); **Petrivske** — Ukraine, Kharkiv Region (49°10' N, 36°58' E); **Poltava** — Ukraine (49°37' N, 34°32' E); **Pyatykhatky** — Ukraine, N Kharkiv (50°05' N, 36°14' E); **Rubizhne** — Ukraine, Kharkiv Region (50°10' N, 36°47' E); **Sidorove** — Ukraine, Donetsk Region, The National Nature Park “Svyatyje Gory” (49°00' N, 37°37' E); **Sokolniki** — Ukraine, Kharkiv (49°25' N, 36°15' E); **Stara Pokrovka** — Ukraine, Kharkiv Region (49°48' N; 36°32' E); **Timchenki** — Ukraine, Kharkiv Region (49°44' N, 36°08' E); **Vakalovshchina** — Ukraine, Sumy Region (51°02' N, 34°55' E); **Velyka Pysarivka** — Ukraine, Sumy Region, The National Nature Park “Getmanskiy” (50°26' N, 35°28' E); **Vilkhuvatka** — Ukraine, Kharkiv Region (50°11' N, 37°31' E); **Vilshany** — Ukraine, Kharkiv Region (50°03' N, 35°51' E); **Volokhiv Yar** — Ukraine, Kharkiv Region (49°36' N, 36°57' E); **Vudy** — Ukraine, Kharkiv Region (50°23' N, 36°04' E); **Zarichne** — Ukraine, Sumy Region (50°24' N, 34°58' E); **Zhovtneve** — Ukraine, Kharkiv Region (49°26' N, 35°30' E).

Ophiomyia adunca Guglya, sp. n (fig. 1–4)

Material examined. Type. Holotype ♂: Ukraine, Sumy Region, 13 km NE Sumy, near Vakalovshchina (51°02' N, 34°55' E), 15.06.2010, meadow with high grass (Guglya) (dissected). [«Сумская обл., Сумской / р-н, окр. с. Вакаловщина / высокотравный луг / 10.00, 15.06.2010 / Собр. Гугля Ю. »]; Paratype ♂: Ukraine, Sumy region, Velyka Pysarivka (50°26' N, 35°28' E), 24.06.2012, meadow on the river Vorskla bank (Guglya) (dissected). [«Сумская обл. / пгт Вел. Писаревка / пойменный луг 10.00 / 24.06.2012 / Собр. Гугля Ю. А.»] (KMN).

Description. Head (fig. 1, 2). Orbit not projected above eye in profile; 2 orb s, 2 fr s (all strong); frorb sta sparse, elongated, reclinate; keel not visible; lunule rounded, its upper margin with triangular deepening medially; ocellar triangle shining, with clear contours, reaching level of 1st orb s; frons matt; vibrissa present; maximal height of eye 8.5× maximal height of gena; gena angular with stretched blunt top oriented frontally; 1st flagellomere rounded.

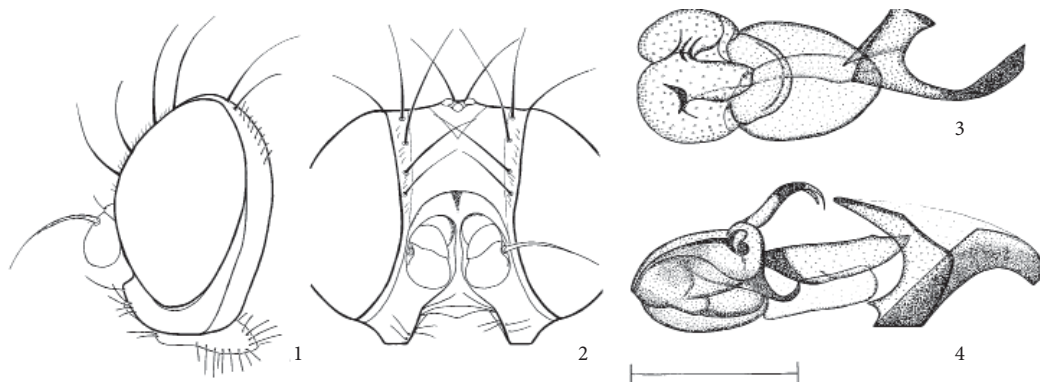


Fig. 1–4. *O. adunca* sp. n., holotype: 1, 2 — male head; 3 — phallus, ventral view; 4 — same, lateral view. Scale bar 0.1 mm.

Рис. 1–4. *O. adunca* sp. n., голотип: 1, 2 — голова самца; 3 — фаллюс, вентральный вид; 4 — то же, латеральный вид. Масштабная линейка 0,1 мм.

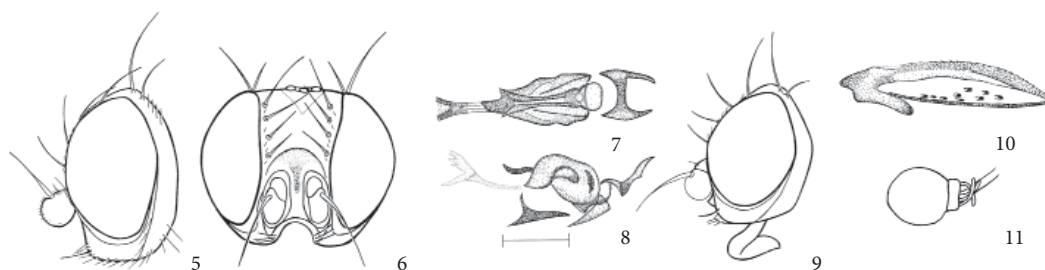


Fig. 5–11. *O. aeneonitens* (Strobl): 5, 6 — male head; 7 — phallus, ventral view; 8 — same, lateral view; 9 — female head; 10 — egg guide, left blade; 11 — spermatheca. Scale bar 0.1 mm.

Рис. 5–11. *O. aeneonitens* (Strobl): 5, 6 — голова самца; 7 — фаллос, вентральный вид; 8 — то же, латеральный вид; 9 — голова самки; 10 — левая лопасть восьмого стернита; 11 — сперматека. Масштабная линейка 0,1 мм.

Wing. Costa reaching M; last section of M $0.75\times$ as long as penultimate; calypter greyish-brown, fringe and margin brown. Wing length 2.1 mm.

Mesonotum shining, bluish-black (anterior view), greyish-black (lateral view); 2 dc; ac 2 nearest to sc-tsct sut and 8 at level of 2nd dc; halter black, legs uniformly brown.

Male genitalia (fig. 3, 4). Phallus 0.25 mm long. Distiphallus $1.4\times$ as long as basiphallus. Distal and proximal parts of distiphallus are triangular with rounded apices and of equal sizes. Endophallus short, not reaching posterior margin of distiphallus, but reaching distal margin of basiphallus. Distiphallus with well-marked, proximally-directed hook dorsomedially. Basiphallus V-shaped in lateral view and G-shaped in dorsal view.

Diagnosis. The new species is similar to *Ophiomyia pulicaria* (fig. 50–54), *O. vimmeri* (fig. 68–71), *O. beckeri* (fig. 12–14) and *O. cunctata* (fig. 18–21) in non-genitalic characters, including as the absence of a vibrissal fasciculus and facial keel, as well as a non-projecting orbit. These species also share a similar basiphallus (G-shaped in dorsal view and V-shaped in lateral view), but the presence of a prominent dorsomedial hook on the distiphallus in the new species is unique. The new species can't be distinguished from the Ukrainian congeners without genitalia dissection.

Etymology. The species name is adjective (Latin *aduncatus* — hooked), reflecting the presence of a well-marked hook on the dorsal part of distiphallus.

***Ophiomyia aeneonitens* (Strobl, 1873) (fig. 5–11)**

Material examined. Near Krasnoye, chalk hills, 23.05.2012, 5 ♂, 1 ♀.

Redescription. Head (fig. 5, 6, 9). Orbit slightly projected above eye in profile; 2 orb s, 2 fr s; frorb sta reclinate, short, sparse; facial bulb $0.8\times$ as wide as pedicel, slightly widening ventrally, with wide, shallow furrow at level of antennal base; lunule rounded; vibrissa present in both sexes; maximal height of eye $12.5\times$ maximal height of gena; ocellar triangle reaching level of 1st orb s; 1st flagellomere rounded.

Wing. Costa reaching just beyond apex of R_{4+5} ; calypter and fringe beige in male, white in female; margin beige. Wing veins white with costal and radial veins beige basally and darker apically. Crossvein r-m lacking. Wing white. Length of wing 1.7 mm.

Mesonotum black, shining (anterior view); 2 dc; ac 2 nearest to sc-tsct sut and 6 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 7, 8). Phallus 0.33 mm long, its shape atypical for *Ophiomyia*, having a short, wide, H-shaped basiphallus, a wide endophallus that is strongly projected above the distal margin of the distiphallus and reaching the distal margins of the basiphallus, and the proximal parts of the distiphallus are quite wide with the apex narrow and strongly tapered.

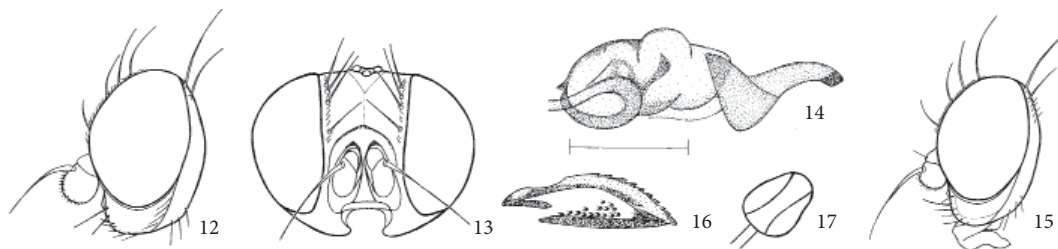


Fig. 12–17. *O. beckeri* (Hendel): 12, 13 — male head; 14 — phallus, lateral view; 15 — female head; 16 — egg guide, left blade; 17 — spermatheca. Scale bar 0.1 mm.

Рис. 12–17. *O. beckeri* (Hendel): 12, 13 — голова самца; 14 — фаллюс, латеральный вид; 15 — голова самки; 16 — левая лопасть восьмого стернита; 17 — сперматека. Масштабная линейка 0,1 мм.

Female terminalia (fig. 10, 11). Both spermathecae equal, spherical, with narrow, sub-cylindrical, collar-like base. Proximal and ventral margins of egg guide with minute, posteriorly directed teeth. Membrane of medial margin with several sparse dark scales.

Distribution. Austria (Hendel, 1931), Tunisia (Spencer, 1964), Ukraine (Guglya, 2012).

Ophiomyia beckeri (Hendel, 1923) (fig. 12–17)

Material examined. Kharkiv, centre, 09.08.2011, 1 ♀; Kharkiv, mines with larva on *Sonchus* sp., 26.05.2013, 03, 09.06.2013 — imago, 1 ♂, 1 ♀; Pyatykhatki, 10.06.2010, 1 ♂; Petrivske, 22.05.2011, 03–04.07.2010, 03.05.2013 and 11.08.2013, 3 ♂, 2 ♀; near Kuzemin, 13.08.2011, 1 ♀; near Rubizhne, 17.08.2013, 1 ♀; near Vakalovshchina, 16.06.2010, 1 ♀; near Timchenki, 06.06.2010, 1 ♀; Stara Pokrovka, 12.06.2012, 1 ♀; near Kuripchine, 27.06.2010, 1 ♀.

Redescription. Head (fig. 12, 13, 15). Orbit not projected above eye in profile; 2 orb s, 2 fr s; 2nd fr s, 1st and 2nd orb s equidistant, and between 1st and 2nd fr s distance twice more; frorb sta short, reclinate and slightly incurved, with a few in area of orb s proclinate; facial keel lacking; lunule oval, with upper margin slightly tapered medially; ocellar triangle matt anteriorly, reaching level of 1st orb s; frons with distinct medial longitudinal line; vibrissa present and equal in both sexes; maximal height of eye 6.0× maximal height of gena.

Wing. Costa reaching M; last and penultimate sections of M equal; calypter and fringe grey; margin black. Length of wing 2.1 mm.

Mesonotum black, shining (anterior view); 2 dc; ac 2 nearest to sctsctl sut and 6 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 14). Phallus 0.24 mm long. Basiphallus V-shaped in lateral view and G-shaped in dorsal view, reaching 0.15 length of distiphallus and distal margin of endophallus. Distiphallus 1.2× as long as basiphallus.

Female terminalia (fig. 16, 17). Both spermathecae equal, oval, length 1.4× width at widest part. Proximal and ventral margins of egg guide with sharp, well-marked, posteriorly directed teeth. Membrane of medial margin with dark scales in 1–3 irregular rows.

Distribution. Widespread in Europe, more common in Mediterranean region, also in South Africa, India (Spencer, 1976), Turkey (Civelek et al., 2009), Lithuania, Kaliningrad Region of Russia (Pakalniškis, 1994), Ukraine (Guglya, 2011, 2012).

Host plant. Asteraceae (*Crepis* spp., *Hypochoeris* spp., *Leontodon* spp., *Picris* spp., *Sonchus* spp., *Taraxacum* spp.) (Spencer, 1976).

Bionomics. Larva feeding in serpentine leaf mine. Pupation taking place inside of leaf (Spencer, 1976).

Ophiomyia cunctata (Hendel, 1920) (fig. 18–24)

Material examined. Kharkiv, mines with larva on *Sonchus oleraceus* 14.08.2010, 11.09.2010 — imago, 1 ♂; Kharkiv, centre, 09.08.2011, 1 ♂, 1 ♀; Sokolniki, mines with larva on *Cirsium vulgare*, 10.07.2011 — pupa, 20.07.2011 — imago, 1 ♀; Near Kuzemin, ex pupa — 16–19.08.2011, 4 ♂, 1 ♀; near Kuripchine, 27.06.2010, 2 ♀; Borisovka, 05–07.07.2011, 1 ♂, 2 ♀; the same locality, mines with larva on *Picris hieracioides* 06.07.2011, 17–18.07.2011 — imago, 1 ♂, 1 ♀.

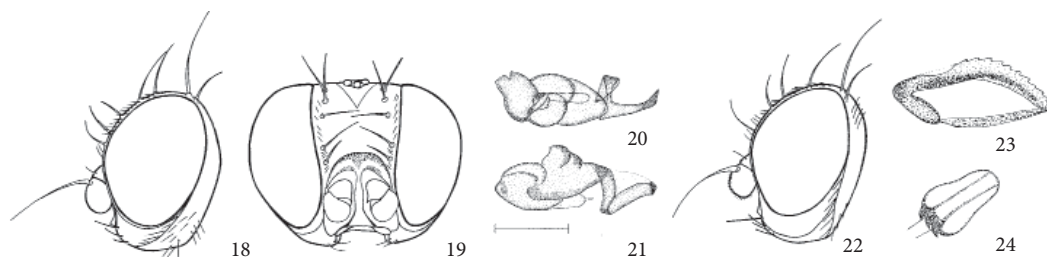


Fig. 18–24. *O. cunctata* (Hendel): 18, 19 — male head; 20 — phallus, ventral view; 21 — same, lateral view; 22 — female head; 23 — egg guide, left blade; 24 — spermatheca. Scale bar 0.1 mm.

Рис. 18–24. *O. cunctata* (Hendel): 18, 19 — голова самца; 20 — фаллос, вентральный вид; 21 — то же, латеральный вид; 22 — голова самки; 23 — левая лопасть восьмого стернита; 24 — сперматека. Масштабная линейка 0,1 мм.

Redescription. Head (fig. 18, 19, 22). Orbit not projected above eye in profile; 3 orb s, 2 fr s; frorb sta long, mainly proclinate, a few in area of fr s reclinate; keel absent; lunule rounded; ocellar triangle reaching the level between 1st and 2nd orb s; vibrissa present in both sexes; maximal height of eye 5.0× maximal height of gena; 1st flagellomere slightly longer than wide, with short white pubescence.

Wing. Costa reaching M; last section of M slightly shorter or equal to penultimate; calypter and fringe grey; margin black. Length of wing 2.0 mm.

Mesonotum black or bluish, shining (anterior view); 2 dc; ac 2 nearest to scsctl sut and 6 at level of 2nd dc; halter brown; legs black.

Male genitalia (fig. 20, 21). Phallus 0.22 mm long. Basiphallus V-shaped in lateral view and G-shaped in dorsal view, reaching 0.1 length of distiphallus and not reaching basal margin of endophallus. Distiphallus 1.85× as long as basiphallus.

Female terminalia (fig. 23, 24). Both spermathecae equal, elongate with apex narrower, 1.6× as long as wide in a widest part. Proximal and ventral margins of egg guide with well-marked sharp teeth, directed posteriorly. Medial margin without any scales.

Distribution. Widespread through much of Europe (Spencer, 1976), Ukraine (Guglya, 2011, 2012), Turkey (Civelek et al., 2009).

Host plant. Asteraceae: *Cirsium vulgare* (Savi) Ten., *Sonchus oleraceus* L., *Lactuca* sp., *Picris hieracioides* L. (Spencer, 1976), *Taraxacum officinale* Webb ex Wigg., *Mycelis muralis* (L.) Dumort., *Lapsana communis* L. (Pakalniškis, 1994), *Bellis*, *Crepis*, *Hypochoeris*, *Picris*, *Prenanthes* (Benavent-Corai et al., 2005).

Bionomics. Larva feeds within the midrib, with short offshoots into the leaf blade. Pupation takes place inside of the leaf in the base of the midrib (Spencer, 1976).

***Ophiomyia longilingua* (Hendel, 1920) (fig. 25–31)**

Material examined. Near Volokhiv Yar, 22.05.2011, 1 ♂, 1 ♀; near Rubizhne, 20.05.2012, 1 ♀; near Krasnoye, 23.05.2012, 1 ♂, 2 ♀; near Orchik, 23.05.2009, 1 ♀; Pyatykhatki, 10.06.2010, 1 ♂; Stara Pokrovka, 12.06.2012, 1 ♂; near Petrivske, 25.06.2011, 1 ♀.

Redescription. Head (fig. 25, 26, 29). Orbit strongly projected above eye in profile; 2 orb s, 2 fr s; frorb sta short, sparse, reclinate; keel lacking; lunule very small, rounded; ocellar triangle extremely small, reaching the level of 2nd orb s, matt; maximal height of eye 3.2× maximal height of gena; 1st flagellomere small, rounded (lateral view); gena angled anteriorly (lateral view); proboscis very long.

Wing. Costa reaching M; last section of M 1.15× as long as penultimate; calypter grey, fringe and margin black. Length of wing 1.9–2.5 mm.

Mesonotum black, matt (anterior view); 2 dc; ac 2 nearest to scsctl sut and 7 at level of 2nd dc; halter and legs brown.

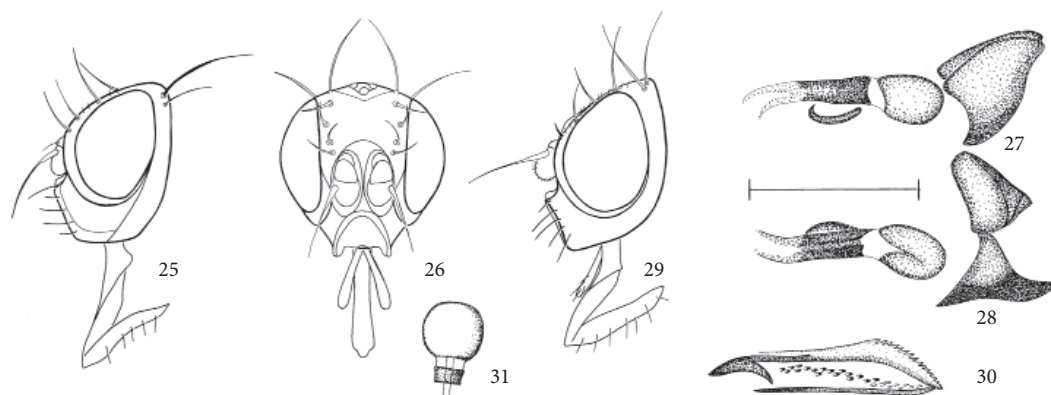


Fig. 25–31. *O. longilingua* (Hendel): 25, 26 — male head; 27 — phallus, lateral view; 28 — same, ventral view; 29 — female head; 30 — egg guide, left blade; 31 — spermatheca. Scale bar 0.1 mm.

Рис. 25–31. *O. longilingua* (Hendel): 25, 26 — голова самца; 27 — фаллюс, латеральный вид; 28 — то же, вентральный вид; 29 — голова самки; 30 — левая лопасть восьмого стернита; 31 — сперматека. Масштабная линейка 0,1 мм.

Male genitalia (fig. 27, 28). Phallus 0.17 mm long. Phallus atypical for *Ophiomyia*, with basiphallus 3.2× as wide as distiphallus (ventral view). Endophallus oval, located nearby basiphallus. Distiphallus small, narrow, taking place distally in phallus complex.

Female terminalia (fig. 30, 31). Both spermathecae equal, spherical, with narrow cylindrical collar. Proximal margin of egg guide with well-marked sharp, elongated teeth, directed posteriorly. Membrane of medial margin with big dark scales in two irregular rows.

Distribution. Widespread but not common in Europe (Austria, France, Greece, Switzerland (Spencer, 1976), Latvia, Lithuania (Pakalniškis, 1994), Ukraine (Guglya, 2011, 2012)).

Host plant. Dipsacaceae: *Knautia arvensis* (L.) Coult (Spencer, 1990, Pakalniškis, 1994).

Bionomics. Larva forms reddish shallow mines in the stem immediately beneath the epidermis. Pupation takes place in the ground (Spencer, 1976, 1990).

Ophiomyia nasuta (Melander, 1913) (fig. 32–37)

Material examined. Near Kamenka, 16.05.2010, 16.05.2010, 1 ♂; near Petrivske, 21.05.2011, 1 ♀; Pyatichatki, 13.05.2011, 10.06.2010, 10.07.2010, 5 ♂, 4 ♀; Sokolniki, 10.07.2011, 2 ♂, 1 ♀; Kharkiv, Botanical Garden, 12.05.2012, 02.09.2012, 2 ♀; near Haydary, 03.06.2011, 03.06.2011, 3 ♂, 7 ♀; Velyka Pysarivka, 24.06.2012, 1 ♂; near Kuzemin, 23.05.2010, 29.05.2011, 14.08.2011, 16 ♂, 8 ♀; Poltava, 12.08.2012, 1 ♀.

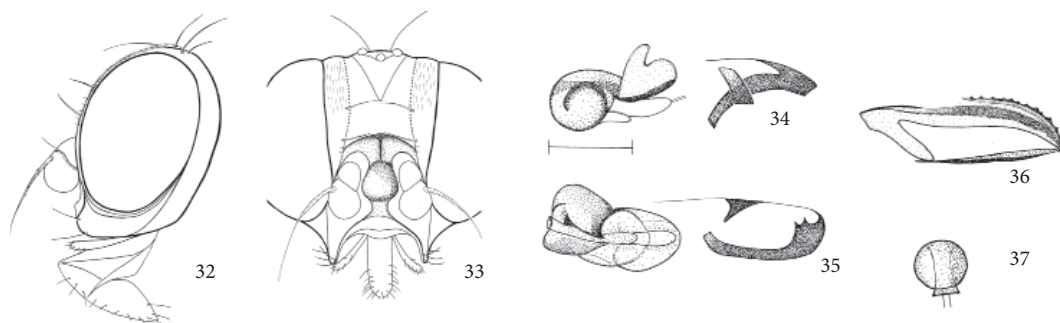


Fig. 32–37. *O. nasuta* (Melander): 32, 33 — male head; 34 — phallus, lateral view; 35 — same, ventral view; 36 — egg guide, left blade; 37 — spermatheca. Scale bar 0.1 mm.

Рис. 32–37. *O. nasuta* (Melander): 32, 33 — голова самца; 34 — фаллюс, латеральный вид; 35 — то же, вентральный вид; 36 — левая лопасть восьмого стернита; 37 — сперматека. Масштабная линейка 0,1 мм.

Redescription. Head (fig. 32, 33). Orbit slightly projected above eye in profile, wide and shining, with clear contours (anterior view); 2 fr s in male, 2 orb s and 2 fr s in female; frorb sta numerous, proclinate, in several rows, elongate; facial bulb 1.5× as wide as pedicel; spherical; lunule rounded, with wide furrow; frons matt; vibrissa present; ocellar triangle reaching the level of 2nd fr s; maximal height of eye 8.0× maximal height of gena; 1st flagellomere rounded, with sparse brown pubescence (lateral view).

Wing. Costa to M; last section of M 0.75× as long as penultimate; calypter beige; margin and fringe brown. Length of wing 2.3 mm.

Mesonotum greyish-black with slight greenish shine (anterior view); 3 dc; ac 3 nearest to sctscut sut and 8 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 34, 35). Phallus 0.32 mm long. Distiphallus oval, with flattened distal margin (ventral view). Distiphallus 1.1× as long as basiphallus. “Elongate arms of basiphallus well-developed but left arm bends laterally at right angles to aedeagus” (Spencer, 1964).

Female terminalia (fig. 36, 37). Both spermathecae equal, spherical, with cylindrical collar. Proximal and ventral margins of egg guide with sharp, sparse, well-defined teeth. Medial margin without any scales.

Distribution. Holarctic (Spencer, 1990), Ukraine (Guglya (2012)).

Host plant. Asteraceae: *Taraxacum* spp. (Spencer, 1990).

Bionomics. Larva feeds in midrib and stalks (Spencer, 1990).

Ophiomyia orbiculata (Hendel, 1931) (fig. 38–43)

Material examined. Pyatichatki, 13.05.2011, 1 ♂; near Kuzemin, 23.05.2010, 28.05.2011, 13.08.2011, 6 ♂, 1 ♀; near Haydary, 04.06.2011, 2 ♂; near Rubizhne, 20.05.2012 and 11–12.06.2011, 6 ♂; near Vakalovshchina, 13–14.06.2010 and 13.06.2013, 2 ♂, 1 ♀; near Eskhar, 16.07.2010, 1 ♂; near Bukino, 20.07.2010, 1 ♂; Kharkiv, centre, 09.08.2011, 1 ♂; Botanical Garden, 30.06.2012, 1 ♂, 2 ♀; near Vilshany, 29.05.2011, 2 ♀; near Kamenka, 01.06.2013, 3 ♀.

Redescription. Head (fig. 38, 39, 41). Orbit strongly projected above eye in profile; 2 orb s, 2 fr s in female and 3 fr s in male; frorb sta reclinate; keel lacking; lunule rounded; ocellar triangle shining, reaching the level of 1st orb s; vibrissa present in both sexes; gena angular; maximal height of eye 6.8× maximal height of gena; 1st flagellomere with slight white pubescence.

Wing. Costa reaching M; last section of M 0.8× as long as penultimate; calypter grey; fringe black. Length of wing 2.5 mm.

Mesonotum black, shining (anterior view); 2 strong dc, sometimes 2–3 smaller additional dorsocentrals also present; ac 4 nearest to sctscut sut and 8 at level of 2nd dc; halter and legs black.

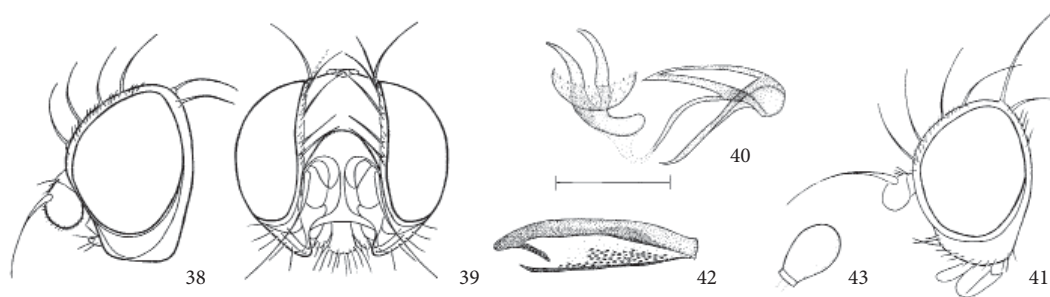


Fig. 38–43. *O. orbiculata* (Hendel): 38, 39 — male head; 40 — phallus, lateral view; 41 — female head; 42 — egg guide, left blade; 43 — spermatheca. Scale bar 0.1 mm.

Рис. 38–43. *O. orbiculata* (Hendel): 38, 39 — голова самца; 40 — фаллус, латеральный вид; 41 — голова самки; 42 — левая лопасть восьмого стернита; 43 — сперматека. Масштабная линейка 0,1 мм.

Male genitalia (fig. 40). Phallus 0.21 mm long. "Aedeagus aberrant, distiphallus bowl-shaped, fringed with some 12 minute spines, an upturned, elongate bladder behind and two tubules distally" (Spencer, 1964, 1976). Basiphallus long, each arm bifid with long ventral process.

Female terminalia (fig. 42, 43). Both spermathecae equal, oval, narrowest basally with short cylindrical collar, 1.65× as long as width at widest part. Proximal margin of egg guide truncated and with several rounded teeth. Membrane of medial margin thickly covered with dark scales.

Distribution. Widespread in much of Northern and Western Europe (Spencer, 1976), (Pakalniškis et al., 2006), Turkey (Civelek et al., 2009), Ukraine (Guglya, 2011, 2012).

Host plant. Fabaceae: *Pisum sativum* L. (Spencer, 1976), *Lathyrus* (Benavent-Corai et al., 2005).

Bionomics. Larva feeding in the stem, pupation takes place in the lower stem or root (Spencer, 1976).

Ophiomyia pinguis (Fallén, 1820) (fig. 44–49)

Material examined. Near Kuzemin, 23.05.2010, 28–29.05.2011, 13–14.08.2011, 32 ♂, 27 ♀; near Vakalovshchina, 15.06.2010, 1 ♀; near Krasnoye, 23.05.2012, 6 ♂, 2 ♀; near Kamenka, 14.05.2010 and 01.06.2013, 2 ♂, 3 ♀; near Zhovtneve, 15.05.2011, 5 ♂, 1 ♀; Vudy, 25.07.2009, 1 ♂; near Vilkhuvatka, 06.08.2011, 2 ♂, 3 ♀; near Sidorove, 07.08.2010, 2 ♂; near Haydary, 03–04.06.2011, 25.06.2009, 1 ♂, 4 ♀; near Gatishche, 15.07.2010, 4 ♂, 1 ♀; near Rubizhne, 20.05.2012, 12.06.2012, 15.07.2010, 26.08.2012, 3 ♂, 8 ♀; near Ogurtsovo, 15.07.2010, 6 ♂; near Bukino, 20.07.2010, 1 ♂, 1 ♀; near Petrivka, 24.07.2010, 1 ♀; Lubotin, 30.05.2010, 1 ♀; Poltava, 12.08.2012, 1 ♂; Sokolniki, 10.07.2011, 3 ♂, 7 ♀; Botanical Garden, 30.06.2012, 1 ♂; Pyatykhatki, 10.06.2010, 2 ♀; near Krinichnoye, 18.07.2010, 1 ♀; near Kochetok, 16.07.2010, 1 ♀; near Balaklea, 04.05.2013, 2 ♂; Trostyanets, 07.05.2013, 1 ♂; near Liman, 18.05.2013, 1 ♂, 4 ♀; near Zarichne, 12.07.2013, 1 ♀; Stara Pokrovka, 13.06.2009, 1 ♂; Borisovka, 06–08.07.2011, 22 ♂, 27 ♀.

Redescription. Head (fig. 44, 45). Orbit slightly projected above eye in profile, wide and shining (anterior view); 2 fr s in male, 2 orb s and 2 fr s in female; frob sta numerous, proclinate, in several rows, elongate; facial bulb large, spherical, 1.1–1.4× as wide as pedicel, slightly flattened; lunule rounded; frons matt, divided into two equal parts with distinct central vertical line; slender vibrissa present in both sexes; maximal height of eye 7.6× maximal height of gena.

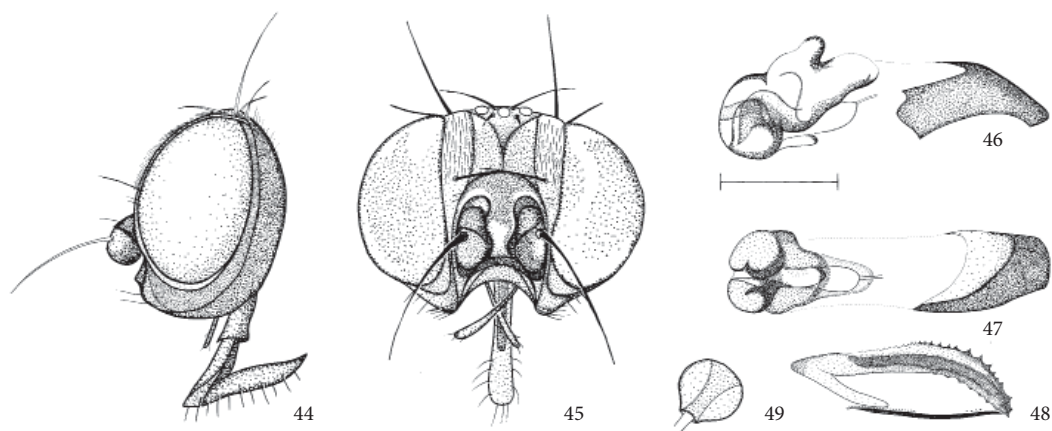


Fig. 44–49. *O. pinguis* (Fallén): 44, 45 — male head; 46 — phallus, lateral view; 47 — same, ventral view; 48 — egg guide, left blade; 49 — spermatheca. Scale bar 0.1 mm.

Рис. 44–49. *O. pinguis* (Fallén): 44, 45 — голова самца; 46 — фаллос, латеральный вид; 47 — то же, ventральный вид; 48 — левая лопасть восьмого стернита; 49 — сперматека. Масштабная линейка 0,1 мм.

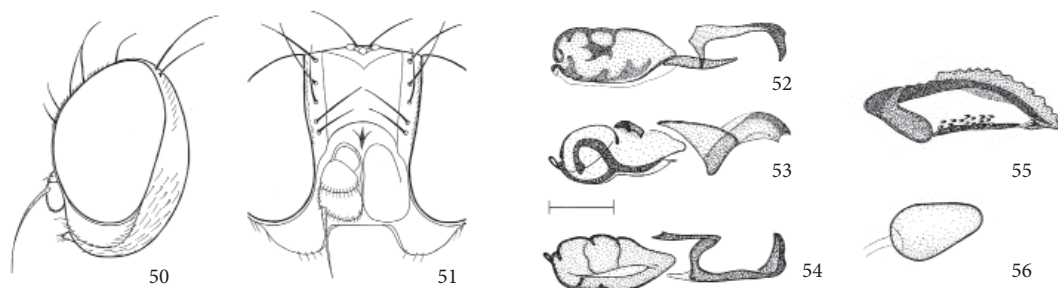


Fig. 50–56. *O. pulicaria* (Meigen): 50, 51 — male head; 52 — phallus, dorsal view; 53 — same, lateral view; 54 — same, ventral view; 55 — egg guide, left blade; 56 — spermatheca. Scale bar 0.1 mm.

Рис. 50–56. *O. pulicaria* (Meigen): 50, 51 — голова самца; 52 — фаллус, дорсальный вид; 53 — то же, латеральный вид; 54 — то же, вентральный вид; 55 — левая лопасть восьмого стернита; 56 — сперматека. Масштабная линейка 0,1 мм.

Wing. Costa to M; last section of M 0.85× as long as penultimate; calypter and margin grey, fringe brown. Length of wing 2.2 mm.

Mesonotum black or greyish-black, slightly shining (anterior view); 2 dc; ac 3 nearest to scstclt sut and 10 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 46, 47). Phallus 0.28 mm long. “Basiphallus elongated, strongly chitinized at base, distiphallus complex asymmetrical” (Spencer, 1964). Distiphallus as long as basiphallus. Endophallus not reaching basal margin of distiphallus. Proximal part of distiphallus with dorsal bladder, 0.4× as wide as distal part.

Female terminalia (fig. 48, 49). Both spermathecae equal, rounded, more strongly tapering to base. Proximal and ventral margins of egg guide with sharp, sparse, well-defined teeth. Medial margin with minute dark scales in one row.

Distribution. Europe (Denmark, Norway, Sweden, Finland, Spain, Italy, former Yugoslavia, European part of Russia (Spencer, 1976), Turkey (Civelek et al., 2009), Lithuania, Belarus (Pakalniškis, 1994), Ukraine (Guglya, 2012), Uzbekistan, Tajikistan, Egypt (Spencer, 1976)

Host plant. Asteraceae: *Cichorium intybus* L., *Leontodon* spp. (Spencer, 1990), *Lactuca* (Benavent-Corai et al., 2005).

Bionomics. Larva feeds primarily in stalks (Spencer, 1990).

***Ophiomyia pulicaria* (Meigen, 1830) (fig. 50–56)**

Material examined. Near Kuzemin, 14.08.2011, 1 ♂; near Vakalovshchina, 14.06.2010, 2 ♂; near Novodruzhesk, 21.07.2010, 1 ♂; near Mala Volchja, 18.05.2011, 1 ♂ (leg. Terekhova); Kharkiv, mine on *Taraxacum officinale* Webb ex Wigg., 25.04.2013 — pupa, 07 and 10.05.2013 — imago, 1 ♂, 1 ♀.

Redescription. Head (fig. 50, 51). Orbit not projected above eye in profile; 2 orb s, 3–4 fr s; frorb sta sparse, short, reclinate; keel lacking; lunule rounded, with furrow on upper third deeper and wider; maximal height of eye 5.6× maximal height of gena; gena rounded; ocellar triangle short but wide, reaching level between 2nd and 3rd orb s.

Wing. Costa ending slightly after M; last and penultimate sections of M equal; calypter grey; margin and fringe black. Length of wing 2.4 mm.

Mesonotum black, slightly shining (anterior view); 3 dc (sometimes 2nd smaller than 1st and 3rd); ac 4 nearest to scstclt sut and 8 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 52–54). Phallus 0.37 mm long. Basiphallus V-shaped in lateral view and G-shaped in dorsal view, reaching 0.1 of distiphallus length (including distal margin of endophallus). Distiphallus as long as basiphallus, oval, with small apical process.

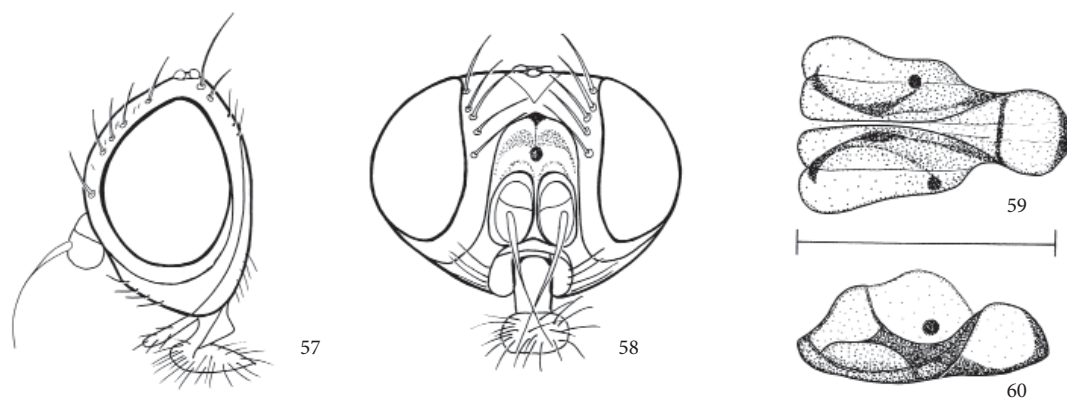


Fig. 57–60. *O. simplex* (Loew): 57, 58 — male head; 59 — phallus, ventral view (without basifallus); 60 — same, lateral view (without basifallus). Scale bar 0.1 mm.

Рис. 57–60. *O. simplex* (Loew): 57, 58 — голова самца; 59 — фаллюс, вентральный вид (без базифаллюса); 60 — то же, латеральный вид (без базифаллюса). Масштабная линейка 0,1 мм.

Female terminalia (fig. 55, 56). Both spermathecae equal, subovate with apex narrower, 1.7× as long as width at widest part. Proximal and ventral margins of egg guide with large, rounded teeth. Distal part of medial margin with large, dark scales in two or three irregular rows.

Distribution. Originally European, this species has been introduced into Asia, Africa, North America and Australia (Spencer, 1990). Ukraine (Guglya, 2011, 2012).

Host plant. Asteraceae: *Crepis* spp., *Hieracium* spp., *Hypochoeris* spp., *Leontodon* spp., *Picris* spp., *Sonchus* spp., *Taraxacum* spp. (Spencer, 1976), *Andryalla*, *Chondrylla*, *Lapsana*, *Reichardia* (Benavent-Corai et al., 2005).

Bionomics. Larva feeding within the midrib. Pupation takes place in the base of the midrib. Two generations per year (Spencer, 1976).

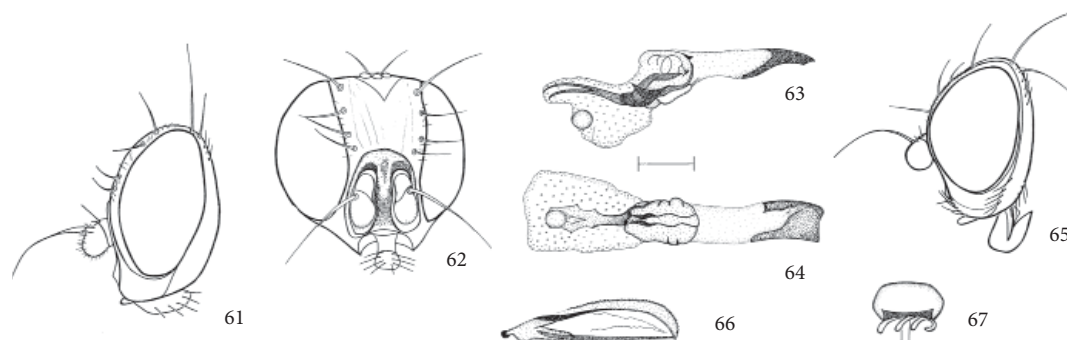


Fig. 61–67. *O. vanyushai* sp. n., holotype: 61, 62 — male head; 63 — phallus, lateral view; 64 — same, ventral view; paratype: 65 — female head; 66 — egg guide, left blade; 67 — spermatheca. Scale bar 0.1 mm.

Рис. 61–67. *O. vanyushai* sp. n., голотип: 61, 62 — голова самца; 63 — фаллюс, латеральный вид; 64 — то же, вентральный вид; паратип: 65 — голова самки; 66 — левая лопасть восьмого стернита; 67 — сперматека. Масштабная линейка 0,1 мм.

***Ophiomyia simplex* (Loew, 1869) (fig. 57–60)**

Material examined. Stara Pokrovka, 13.06.2010, 2 ♂.

Redescription. Head (fig. 57, 58). Orbit strongly projected above eye in profile, shining; 2 orb s, 3 fr s; frorb sta reclinate, sparse; keel and vibrissa lacking; lunule with round deepening in centre; ocellar triangle conspicuously shining, reaching the level of 2nd orb s; maximal height of eye 5.0× maximal height of gena; 1st flagellomere small, rounded.

Wing. Costa ending after R_{4+5} ; last and penultimate sections of M equal; calypter grey, fringe and margin black. Length of wing 2.2 mm.

Mesonotum black; 2 dc; halter and legs black.

Male genitalia (fig. 59, 60). Distiphallus 0.11 mm long, 2.0× as wide as endophallus (ventral view). Basiphallus highly asymmetrical.

Distribution. Occurring in most of Western Europe, Ukraine (Guglya, 2011), the United States and Eastern Canada (Spencer, 1976).

Host plant. Asparagaceae: *Asparagus officinalis* L. (Spencer, 1990).

Bionomics. Larva forms external stem mines (Spencer, 1990).

***Ophiomyia vanyushai* Guglya, sp. n (fig. 61–67)**

Material examined. Type. Holotype ♂, Ukraine: Kharkiv Region, near Krasnoye (49°56' N, 37°47' E), 23.05.2012, flood-lands, River Oskol bank (Guglya) (dissected). [«Харьковская обл. / Двуречанский р-н / окр. с. Красное, 23.05.2012 / 9.30, пойменный луг, кошение / Собр. Гугля Ю. А.»] (KMN). Paratype 1 ♀: Kharkiv Region, near Kamenka (49°59' N, 37°53' E), same date (Guglya) (dissected). [«Харьковская обл. / Двуречанский р-н / окр. с. Каменка / 23.05.2012 / Собр. Гугля Ю.»., «16.00, рудеральная / растительность, / выпас коров»] (KMN).

Description. Head (fig. 61, 62, 65). Orbit narrow, matt, without clear contours (anterior view), strongly projected above eye in profile; 2 orb s, 2 fr s; frorb sta sparse, reclinate; frons matt; facial bulb flattened, moderately wide and rounded in lower part, 1.2× as wide as base of antenna; lunule rounded, distinctly projected above level of frons; ocellar triangle matt, with clear contours, reaching the level of 2nd orb s; maximal height of eye 6.0× maximal height of gena; gena slightly projected (in male) or not projected (in female) anteriorly (lateral view).

Wing. Costa ending between R_{4+5} and M; last section of M 0.8× as long as penultimate; calypter grey, fringe and margin dark greyish. Length of wing 2.9 mm.

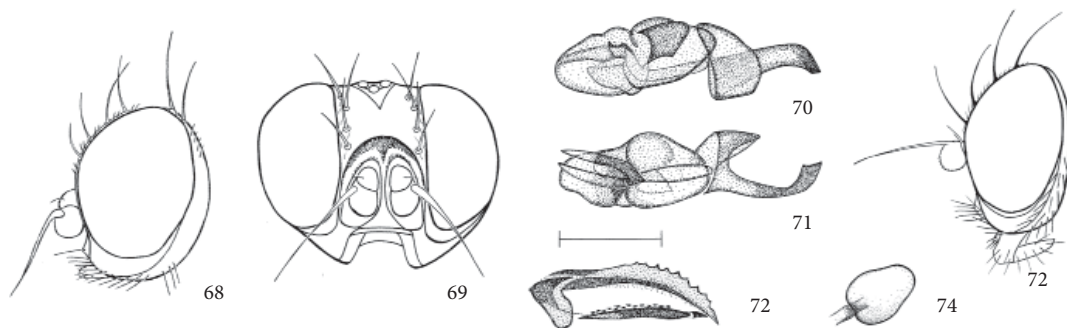


Fig. 68–74. *O. vimmeri* Černý: 68, 69 — male head; 70 — phallus, lateral view; 71 — same, ventral view; 72 — female head; 73 — egg guide, left blade; 74 — spermatheca. Scale bar 0.1 mm.

Рис. 68–74. *O. vimmeri* Černý: 68, 69 — голова самца; 70 — фаллос, латеральный вид; 71 — то же, ventральный вид; 72 — голова самки; 73 — левая лопасть восьмого стернита; 74 — сперматека. Масштабная линейка 0,1 мм.

Mesonotum black with greyish pruinosity (anterior view); 2 dc in male, 3 dc in female; ac 4 nearest to sctsctl sut and 6 at level of 2nd dc; halter and legs black.

Male genitalia (fig. 63, 64). Phallus 0.48 mm long. Phallus atypical for the genus, extremely elongated. Basiphallus with wide apical margin (ventral view), widely separated from distiphallus. Distiphallus ovate, with extremely elongated distal process that is apically bifid. Membrane thickly dotted. Endophallus reaching posterior margin of distiphallus.

Female terminalia (fig. 66, 67). Both spermathecae equal, oval, flattened apically, 0.5× as long as wide. Proximal and ventral margins of egg guide with small, well-marked teeth, directed posteriorly. Medial margin without any scales.

Diagnosis. The shape of the gena of *Ophiomyia vanyshai* is similar to that of *O. nasuta* (fig. 33–34) and *O. pinguis* (fig. 44–45), but other characters (size and shape of facial keel, number and orientation of frorb sta, presence of orb s in male and strongly projecting orbits above eye in profile) are different. It can be easily recognized from Ukrainian congeners in having a lunule projecting above the frons in profile, the shape of the facial keel, an orbit strongly projected above the eye in profile, and with a costa ending between R_{4+5} and M. The phallus is also uncommonly elongated, with the distance between the basiphallus and distiphallus complex as long as the basiphallus itself. The distiphallus also has spherical ventral apodeme, and it has a long, apically bifid process enclosed in a membranous structure.

Distribution. Eastern Ukraine (east of Kharkiv Region).

Etymology. The species is named in honor of the author's son, Vanyusha.

Ophiomyia vimmeri Černý, 1994 (fig. 68–74)

Material examined. Near Vakalovshchina, 15.06.2010, 1 ♂; near Kuzemin, 23.05.2010, 29.05, 13.08.2011, 5 ♂, 3 ♀; near Haydary, 03.06.2011, 1 ♂; Lubotin, 30.05.2010, 1 ♀; Trostyanets, 07.05.2013, 1 ♂; Dvorichna, 31.05.2013, 1 ♂.

Redescription. Head (fig. 68, 69, 72). Orbit slightly projected above eye in profile; 2 orb s, 2 fr s; frorb sta reclinate; keel absent; lunule rounded; ocellar triangle reaching the level of 1st orb s; gena narrow, 0.12× as wide as maximum height of the eye, rounded; maximal height of eye 8.1× maximal height of gena; 1st flagellomere spherical.

Wing. Costa reaching M; last section of M as long as penultimate; calypter beige; margin and fringe brown. Wing yellowish. Length of wing 2.4 mm.

Mesonotum black, shining (anterior view); ac 2 nearest to sctsctl sut and 8 at level of 2nd dc; halter dark brown; legs uniformly black.

Male genitalia (fig. 70, 71). Phallus 0.25 mm long. “Aedeagus small with characteristically divided, swollen distiphallus” (Černý, 1994). Basiphallus V-shaped in lateral view and G-shaped in dorsal view reaching 0.25 length of distiphallus and distal margin of endophallus. Distiphallus 1.35× as long as basiphallus.

Female terminalia (fig. 73, 74). Both spermathecae equal, subovate with apex narrower, 1.4× as long as width in widest part. Proximal and ventral margins of egg guide with sharp, sparse, well-defined teeth. Medial margin with large, dark scales in two irregular rows.

Distribution. Slovakia (Černý, 1994), Ukraine (Guglya, 2011, 2012).

Key to males *Ophiomyia* species of Eastern Ukraine and adjacent territories

1. Vibrissal fasciculus absent (fig. 1, 25, 57). 2
- Vibrissal fasciculus present (see Guglya, 2013: fig. 1, 11). 13
2. Second crossvein lacking; costa reaching just beyond R_{4+5} ; costal and radial veins beige basally and darker apically, other veins white; wing whitish. Facial keel flat (fig. 5, 6). Basiphallus H-shaped, with two separate arms, not fused basally (fig. 7, 8). *O. aeneonitens* (Strobl, 1873)
- Second crossvein present. Other characters variable. 3
3. Frorb sta long, very thick, proclinate (fig. 32, 44). 4
- Frorb sta short or slightly elongate, sparse, either reclinate or reclinate and proclinate together (fig. 1, 12, 18, 29). 5

4. 3 dc. Basiphallus with elongated left arm. Endophallus 5× as narrow as mesophallus (ventral view) (fig. 34, 35). *O. nasuta* (Melander, 1830)
- 2 dc. Basiphallus V-shaped with left arm shorter. Endophallus 1.3–1.5× as narrow as mesophallus (ventral view) (fig. 46, 47). *O. pinguis* (Fallén, 1820)
5. Orbit strongly projected above eye in profile (fig. 57, 61). 6
- Orbit not projected or slightly projected above eye in profile (fig. 1, 18). 9
6. Facial keel flattened, moderately wide (1.2× as wide as base of antenna) and rounded ventrally (fig. 61, 62). Basiphallus connected with distiphallus complex with membrane as long as basiphallus. All phallus complex elongate. Apical process on distiphallus bifid (fig. 63, 64). *O. vanyushai* sp. n.
- Facial keel absent (fig. 26, 39). 7
7. Lunule very high, 0.35× as high as maximum height of eye (anterior view), in centre of upper margin slightly tapered, hardly reaching of ocellar triangle (fig. 57, 58). Distiphallus complex elongate-trapezoidal (fig. 59–60). *O. simplex* (Loew, 1869)
- Lunule much narrower, 0.1–0.16× as high as maximum height of eye (anterior view) (fig. 13, 26). 8
8. Gena angled anteriorly (lateral view); eye small, 0.6× as high as height of head; very long proboscis (fig. 25, 26). Distiphallus-endophallus complex 4× as long as its width. Basiphallus consists of two wide triangular connected at base arms (fig. 27, 28). *O. longilingua* (Hendel, 1920)
- Gena circular anteriorly (lateral view); eye large, 0.8× as high as maximum height of head; proboscis normal (fig. 38, 39). Basiphallus with strongly chitinized, linear lateral pieces; one arm extending to endophallus (Fig 40). *O. orbiculata* (Hendel, 1913)
9. Both reclinate and proclinate frorb sta present. 10
- All frorb sta reclinate. 11
10. Frorb sta long, mainly proclinate, a few at level of fr s reclinate; orbit only slightly projected above eye in profile; upper margin of lunule rounded (fig. 18, 19). Endophallus not reaching of posterior margin of distiphallus (fig. 20, 21). *O. cunctata* (Hendel, 1920)
- Frorb sta short, slightly incurving, mainly reclinate, a few at level of orb s proclinate; orbit not projected above eye in profile; upper margin of lunule slightly pointed (fig. 12, 13). Distiphallus and endophallus posteriorly of the same length (fig. 14). *beckeri* (Hendel, 1923)
11. Gena rounded; vibrissa absent (fig. 50, 68). 12
- Gena angular, with slightly stretched blunt top oriented frontally; vibrissa present. Distiphallus-mesophallus complex dorsally with hook (fig. 1–4)..... *O. adunca* sp. n.
12. Costa ending exactly on M; 2 dc; orbit matt, slightly projected above eye in profile (lateral view); 1st flagellomere relatively small, rounded (lateral view); calypter beige, margin and fringe brown; halter dark brown (fig. 68, 69). Distiphallus distally rounded, as long as endophallus (fig. 70–71) *O. vimmeri* Černý, 1994
- Costa ending slightly beyond M; 3 dc; orbit slightly shining, more projected above eye in profile (anterior view); 1st flagellomere of medium size, elongate (lateral view); calypter grey, margin and fringe black; halter black (fig. 50, 51). Distal end of distiphallus broadly rounded with one small distomedial process (fig. 52–54). *O. pulicaria* (Meigen, 1830)
13. Six fronto-orbital setae (see Guglya, 2013: fig. 18, 19). Basiphallus slightly shorter than distiphallus-mesophallus complex. Endophallus short, not reaching distal branches of basiphallus (see Guglya, 2013: fig. 20, 21). *O. delphinii* Hendel, 1926
- Five or four fronto-orbital setae. 14
14. Five fronto-orbital setae, one can be very short. 15
- Four fronto-orbital setae. 17
15. Orbit strongly projected above eye in profile; gena wide, subrectangular; vibrissal fasciculus strong, short, straight and directed slightly upwards; facial bulb and most of lunule with distinct furrow (see Guglya, 2013: fig. 48, 49). Left arm of basiphallus very weakly chitinized. Distiphallus triangular and elongate. Endophallus distally slightly shorter than distiphallus (see Guglya, 2013: fig. 50, 51). *O. malalata* Guglya, 2013
- Orbit slightly projected above eye in profile; gena wider anteriorly, stretched forward; vibrissal fasciculus longer, incurving upwards; furrow on facial bulb absent or very small and shallow (see Guglya, 2013: fig. 59, 60, 67, 68). 16
16. Lunule wide, rounded, 0.2× as high as maximum height of eye (anterior view); facial bulb 0.7× as wide as pedicel, oval, with small furrow; all orb s and fr s long and strong (see Guglya, 2013: fig. 67, 68). Distiphallus complex with black U-shaped process dorsally (ventral view) (see Guglya, 2013: fig. 69, 70). *O. melandryi* de Meijere, 1924
- Lunule wide but low, 0.12× as high as maximum height of eye (anterior view), in centre of upper margin tapered; facial bulb 0.6× as wide as pedicel, flattened, without furrow, but with wide deepening at level of pedicel; first fr s slim, badly visible (see Guglya, 2013: fig. 59, 60). Distiphallus complex with black V-shaped process dorsally (ventral view) (see Guglya, 2013: fig. 61–63). *O. melandricaulis* Hering, 1943
17. Gena very narrow, strongly projected forward (see Guglya, 2013: fig. 6, 11, 22, 79). 18

- Gena medium or wide (see Guglya, 2013: fig. 1, 33, 115). 21
18. Head rounded in profile, 0.8–0.85× as long as high (measure along the longest axis of the eye); facial bulb wide, spherical with furrow; gena: produced and fingerlike in male, with very long, slender, curved dorsally fasciculus (see Guglya, 2013: fig. 79, 80). Distiphallus narrow, slightly curved, with two short, curved dorsal processes (lateral view). Endophallus very small (see Guglya, 2013: fig. 81, 82). *O. ranunculicaulis* Hering, 1949
- Head ellipsoid in profile, 0.5–0.6× as long as high (measure along the longest axis of the eye); facial bulb without furrow; gena extremely elongated and uniformly narrowing, with short vibrissal fasciculus (see Guglya, 2013: fig. 6, 7, 11, 12). 19
19. Ocellar triangle very long, nearly reaching lunule; lunule very shallow, 0.02× as high as maximum height of eye (anterior view); gena uniformly incurving upwards, vibrissal fasciculus very short but thick (see Guglya, 2013: fig. 11, 12, 15). Endophallus posteriorly longer than mesophallus (ventral view), and curved dorsally (lateral view) (see Guglya, 2013: fig. 13, 14). *O. curvipalpis* (Zetterstedt, 1848)
- Ocellar triangle reaching only the level of 2nd fr s; lunule 0.04–0.07× as high as height of eye (anterior view); vibrissal fasciculus longer and sharply directed upwards. Endophallus posteriorly shorter than mesophallus (ventral view), and straight (lateral view) (see Guglya, 2013: fig. 6, 7, 22, 23, 26). 20
20. Gena incurved apically; lunule with dorsal margin flat; orbit wide (anterior view); orb s and fr s within orbit (see Guglya, 2013: fig. 22, 23). Endophallus straight and shorter than distiphallus posteriorly (ventral and lateral view) (see Guglya, 2013: fig. 24, 25). *O. disordens* Pakalniškis, 1998
- Gena straight; lunule wider medially with dorsal margin rounded; orbit narrower; orb s and fr s are on the border of orbits and frons (see Guglya, 2013: fig. 6, 7). Endophallus shorter than mesophallus and curved (ventral, dorsal and lateral view) (see Guglya, 2013: fig. 8–10). *O. crispa* Guglya, 2013
21. Calypter and fringe beige; margin brown. 22
- Calypter grey, color of fringe and margin varied. 24
22. Wing yellowish; ocellar triangle matt (anterior view), without clear contours; upper margin of lunule flattened (see Guglya, 2013: fig. 71, 72). Right arm of basiphallus spirally curved; left arm almost entirely absent, vestigial (see Guglya, 2013: fig. 73, 74). *O. mohelensis* Černý, 1994
- Wing hyaline; ocellar triangle shining (anterior view), with clear contours; upper margin of lunule rounded (see Guglya, 2013: fig. 45, 116). 23
23. Furrow on keel widening dorsally onto lunule, where it strongly widens; orbit projected above eye in profile (see Guglya, 2013: fig. 44, 45). Distiphallus complex linear, tubular. Basiphallus well developed, with two arms (see Guglya, 2013: fig. 46, 47). *O. heracleivora* Spencer, 1957
- Keel furrow lacking; orbit not projected above eye in profile (see Guglya, 2013: fig. 115, 116). Distiphallus widest on the distal half with a tubular dorsomedial exvagination. Endophallus posteriorly shorter than mesophallus, but reaching anterior margin of right arm of basiphallus (see Guglya, 2013: fig. 117, 118). *O. versera* Guglya, 2013
24. Costa not reaching M. 25
- Costa reaching M. 26
25. Costa ending between R_{4+5} and M; vibrissal fasciculus long, strong basally, apical half sharply narrowed, directed upwards (see Guglya, 2013: fig. 119, 120). Basiphallus 1.4× as long as distiphallus complex. Endophallus posteriorly shorter than distiphallus (see Guglya, 2013: fig. 121, 122). *O. vitiosa* Spencer, 1964
- Costa reaching R_{4+5} ; vibrissal fasciculus in male strong, uniformly narrowing and curved dorsally (see Guglya, 2013: fig. 97, 98). Distiphallus complex bilobate, with tubular spinules. Endophallus posteriorly of the same length with distiphallus (ventral view) (see Guglya, 2013: fig. 99, 100). *O. slovacica* Černý, 1994
26. Lunule of medium length, 0.13–0.18× as high as maximum height of eye (anterior view) (see Guglya, 2013: fig. 30, 38, 53). 27
- Lunule short, 0.03–0.07× as high as maximum height of eye (anterior view) (see Guglya, 2013: fig. 2, 34) 29
27. Wing length > 2.4 mm; lunule rounded; orbit significantly projected above eye in profile (see Guglya, 2013: fig. 37, 38) Distiphallus 1.2× as long as basiphallus. Distal margin of basiphallus reaching 0.2 of length of distiphallus and posterior margin of endophallus (see Guglya, 2013: fig. 39, 40). *O. fennoniensis* Spencer, 1976
- Wing length < 2.2 mm; lunule with tapered upper margin; orbits not or slightly projected above eye in profile (see Guglya, 2013: fig. 30, 53). Other characters variable. 28
28. Facial bulb with distinct furrow at flagellomere base level; orbit narrow, matt (anterior view) (see Guglya, 2013: fig. 52, 53). Distiphallus complex widest medially (ventral view). Distiphallus complex as long as basiphallus. Endophallus wide, curved dorsally and posteriorly equal to the distiphallus (lateral view) (see Guglya, 2013: fig. 54, 55). *O. maura* (Meigen, 1832)
- Facial bulb (at the level of pedicel and base of antenna) and lunule with deep furrow; orbit narrow, slightly shining (anterior view) (see Guglya, 2013: fig. 29, 30). Distiphallus complex elongate, oval, widest subbasally. Basiphallus 0.9× as long as distiphallus complex. Endophallus narrow, straight and not reaching posterior margin of distiphallus (see Guglya, 2013: fig. 31, 32). *O. eucodonus* Hering, 1960

29. Lunule concave dorsomedially; facial bulb wide, spherical, as wide as pedicel. Frons without medial longitudinal line (see Guglya, 2013: fig. 104, 105). Endophallus 1.5× as wide as distiphallus (lateral view) (see Guglya, 2013: fig. 106, 107). *O. spenceri* Černý, 1985
- Lunule without deepening at upper margin; facial bulb medium-sized or narrow, 0.5–0.8× as wide as pedicel (see Guglya, 2013: fig. 2, 33), if facial bulb equal in width to pedicel, then frons divided by distinct medial longitudinal line (see Guglya, 2013: fig. 109). 30
30. Frontal medial longitudinal line well marked (see Guglya, 2013: fig. 2, 91, 109). 31
- Frontal medial longitudinal line lacking (see Guglya, 2013: fig. 34, 76, 87). 33
31. Facial bulb narrower, 0.55× as wide as pedicel, with short medial furrow; (see Guglya, 2013: fig. 90, 91). Axis of distiphallus complex, endophallus and basiphallus are parallel and on the equal distance from each other (lateral view) (see Guglya, 2013: fig. 92, 93). *O. skanensis* Spencer, 1976
- Facial bulb wider, 0.8–1.0× as wide as pedicel (see Guglya, 2013: fig. 2, 109). Other characters variable. 32
32. Lunule rounded; furrow raised through lunule and facial bulb; vibrissal fasciculus strong, long, pale at the end (see Guglya, 2013: fig. 108, 109). Distiphallus complex narrow and long, 1.25× as long as basiphallus. Endophallus posteriorly shorter than distiphallus (lateral view) (see Guglya, 2013: fig. 110, 111). *O. submaura* Hering, 1926
- Lunule rectangular, tapered; facial bulb without furrow, but of complicated shape; vibrissal fasciculus shorter, strong at base and sharply narrowing apically, uniformly dark (see Guglya, 2013: fig. 1–2). Length of distiphallus complex equal to basiphallus. Endophallus posteriorly equal to distiphallus (lateral view) (see Guglya, 2013: fig. 3–5). *O. australis* Guglya, 2013
33. Orbit not projected above eye in profile; vibrissal fasciculus very strong, uniformly curving upwards, short (see Guglya, 2013: fig. 75, 76). Basal lobe of distiphallus thickly dotted (see Guglya, 2013: fig. 77, 78) *O. punctata* Guglya, 2013
- Orbit visibly projected above eye in profile; vibrissal fasciculus straight and long (see Guglya, 2013: fig. 33, 86). 34
34. Lunule slightly rounded; vibrissal fasciculus uniformly dark (see Guglya, 2013: fig. 86, 87). Distiphallus oval, with waved contours (ventral view). Basiphallus relatively massive. Endophallus posteriorly shorter than distiphallus (see Guglya, 2013: fig. 88, 89). *O. senecionina* Hering, 1944
- Upper margin of lunule flat and tapered in the centre; vibrissal fasciculus straight, directed slightly upwards, white at the end (see Guglya, 2013: fig. 33, 34). Distiphallus narrow, with rectangular distal part and triangular proximal part, posteriorly as long as endophallus, that reaching anterior branches of basiphallus. Basiphallus 1.28× as long as distiphallus (see Guglya, 2013: fig. 35, 36). *O. fasciculosalba* Guglya, 2013

I wish to express my thanks to Milos Černý (Czech Republic) for his assistance in identification of some species. Owen Lonsdale (Canada) reviewed this paper, gave his critical comments and improved its language, and I greatly appreciate his work. Another anonymous referee gave her/his valuable and constructive critical comments. I also thank Valery A. Korneyev for his advices during preparation the manuscript and illustrations.

References

- Benavent-Corai, J., Martinez, M., Jiménez Peydró, R. Catalogue of the host plants of the world Agromyzidae (Diptera) // Bollettino di Zoologica Agraria e di Bachicoltura. — 2005. — Ser. II, 37. — P. 1–97.
- Černý, M. Eight new species of *Ophiomyia* from Czech Republic and Slovak Republic (Diptera: Agromyzidae) // Eur. J. Entomol. — 1994. — 91. — P. 455–476.
- Civelek, H. S., Çikman, E., Dursun, O. Revised checklist of Turkish Agromyzidae (Diptera) fauna of Turkey // Turk. J. Zool. — 2009. — 33. — P. 349–357.
- Guglya, Yu. A. Rearing of mining flies from subfamily Agromyzinae (Diptera: Agromyzidae) and new faunistic data from the territory of Kharkiv Region of Ukraine // The Kharkiv Entomol. Soc. Gaz. — 2010. — 18, is. 2. — P. 57–59. — Russian : Гугля Ю. А. Выведение минирующих мушек подсемейства Agromyzinae (Diptera: Agromyzidae) и новые находки из Харьковской области Украины.
- Guglya, Yu. A. A study of the fauna of leaf-miner flies of subfamily Agromyzinae (Diptera: Agromyzidae) of Ukraine. Report 1. 28 new species for the fauna of Ukraine // The Kharkiv Entomological Society Gazette. — 2011. — 19 (2). — P. 61–66. — Russian : Гугля Ю. А. Изучение фауны минирующих мушек подсемейства Agromyzinae (Diptera: Agromyzidae) Украины. Сообщение 1. 28 новых видов для фауны Украины.
- Guglya, Yu. A. A study of the fauna of leaf-miner flies of subfamily Agromyzinae (Diptera: Agromyzidae) of Ukraine. Report 2. 15 new species for the fauna of Ukraine. The first record of *Melanagromyza prosecta* (de Meijere, 1910) for Europe // The Kharkiv Entomological Society Gazette. — 2012. — 20 (1). — P. 56–62. — Russian : Гугля Ю. А. Изучение фауны минирующих мушек подсемейства Agromyzinae (Diptera: Agromyzidae) Украины. Сообщение 2. 15 новых видов для фауны Украины. Первая находка *Melanagromyza prosecta* (de Meijere, 1910) в Европе.

- Guglya, Yu. A. Mining flies of the genus *Ophiomyia* (Diptera, Agromyzidae) of Eastern Ukraine and adjacent territories. Review of the species with fasciculus // *Vestnik zoologii*. — 2013. — 47, N 6 — P. 507–529.
- Hendel, F. 59. Agromyzidae [part 3] // *Die Fliegen der palaearktische Region* / Ed. E. Lindner. — 1931. — Bd. 6 (1), Lfg. 56. — S. 129–192.
- Pakalniškis, S. The Lithuanian Agromyzidae (Diptera). Descriptions of 6 new species and other notes // *Acta entomologica Lituania*. — 1994. — 12. — P. 5–34.
- Pakalniškis, S., Bernotienė, R., Lutovinovas, E. et al. Checklist of Lithuanian Diptera // *New and Rare for Lithuania Insect Species*. — 2006. — 18. — P. 16–154.
- Spencer, K. A. A revision of the palaeartic species of the genus *Ophiomyia* Braschnikov (Diptera: Agromyzidae) // *Beitr. Entomol.* — 1964. — Bd. 14, Hf. 7–8. — S. 773–822.
- Spencer, K. A. The Agromyzidae (Diptera) of Fennoscandia and Denmark — Klampenborg : Scandinavian Sci. Press, 1976. — Part 1. — 304 p.
- Spencer, K. A. Host specialization in the world Agromyzidae (Diptera) — Dordrecht : Kluwer Acad. Publ., 1990. — 444 p. — (Ser. Entomologica. Vol. 45).

Received 20 Desember 2013

Accepted 4 February 2014