

UDC 595.773.4

A NEW SPECIES OF THE GENUS *HERINA* (DIPTERA, ULIDIIDAE) FROM DOMINICA (LESSER ANTILLES)

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A New Species of the Genus *Herina* (Diptera, Ulidiidae) from Dominica (Lesser Antilles). Kameneva E. P. — *Herina caribbeana* Kameneva, sp. n. from Dominica is described and figured. It is related to the *narytia* group of species, to date represented by 4 North American species, but differs from these by the wing pattern (dark spots at apex of R_1 and on the crossbands r-m and dm-cu separated, not forming cross-band), as well as male genitalia (prensisetae long and close together). This is the first record of the genus *Herina* Robineau-Desvoidy, 1830 from the Neotropical Region. A key to the New World species is provided.

Key words: Diptera, Ulidiidae, Otitini, *Herina*, Caribbean basin, Lesser Antilles, Dominica, new species.

Новый вид рода *Herina* (Diptera, Ulidiidae) с Доминики (Малые Антильские о-ва). Каменева Е. П. — Описана *Herina caribbeana* Kameneva, sp. n. с о. Доминика. Он относится к группе видов *narytia*, представленной 4 видами из Северной Америки, но отличается от них рисунком крыла (тёмные пятна на вершине R_1 и поперечных жилках r-m и dm-cu разделены, не образуя сплошной перевязи), а также строением гениталий самца (пренсисеты длинные и сближенные). Это первая находка рода *Herina* Robineau-Desvoidy, 1830 из Неотропической области. Приведена таблица для определения видов, обитающих в Новом Свете.

Ключевые слова: Diptera, Ulidiidae, Otitini, *Herina*, Карибский бассейн, Малые Антильские острова, Доминика, новый вид.

Introduction

The family Ulidiidae includes about 700 species, distributed mainly in the New World and in the Palaearctic Region.

The genus *Herina* Robineau-Desvoidy, 1830 includes some 40 species and is one of the largest genera of the family Ulidiidae, widespread both in the Palaearctic and Nearctic Regions. It is one of the few ulidiid genera occurring in the Oriental Region and reaching the Papuan Subregion of the Australasian Region. The genus has been keyed or revised for North America (McAlpine 1951), Western Eurasia (Merz, 1996, 2002; Kameneva, 2006, 2007; Kameneva, Pljushtch, 2010; Kameneva, Korneyev, 2012; Morgulis et al., in press; Mohamadzade, Kameneva, in press), and Eastern Asia to Papua New Guinea (Kameneva, 2006). Most *Herina* species are associated with grasslands containing shrubs, meadows or highland mountain grasslands in tropical regions, but nothing is known about their biology.

While treating material from the Antilles, a series of another new species was found. It is described and figured below.

Material and methods

The specimens were received from the collection of the Carnegie Museum.

The type specimens are deposited in collections of the following institutions: CMP — the Carnegie Museum, Pittsburgh, Pennsylvania, USA; USNM — National Museum of Natural History, Washington, D. C., USA; SIZK — I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kiev, Ukraine.

The following morphometric characters with their abbreviations are used: body length (BL); wing length (WL); aculeus length (AL). Morphological terminology follows J. F. McAlpine (1981) and Kameneva (2007).

***Herina narytia* group of species**

Diagnosis: this group of species can be separated from other *Herina* species by the combination of the following characters: crossvein dm-cu at level of apex of vein R₁; middle of wing with crossband from pterostigma through crossveins r-m and dm-cu; subbasal crossband reaching cells bm or bcu; mesonotum sparsely microtrichose; cuticle visible; medial surstylus widely bifurcate, with lateroventral branch fused to lateral surstylus (bearing single preniseta), and finger-like medial lobe.

Four described and one new species from North America to Caribbean Basin: *H. narytia* (Walker, 1849), *H. ruficeps* Wulp, 1867, *H. canadensis* (Johnson, 1902), *H. nigribasis* J. F. McAlpine, 1951, *H. caribbeana* sp. n. European *H. scutellaris* Robineau-Desvoidy, 1830 also must be related to this group.

Key to species of *H. narytia* group (modified from McAlpine, 1951)**Таблица для определения видов группы *H. narytia* (по: McAlpine, 1951)**

1. Crossveins r-m and dm-cu close one to another, section of vein M between them <1.5x (0.6–1.4) as long as dm-cu; dark areas in pterostigma, r-m and dm-cu fused to form entire crossband (see McAlpine, 1951: fig. 1a–4a). 2
- Crossveins r-m and dm-cu distantly separated, section of vein M between them >1.5x (1.6–2.2) as long as dm-cu; dark areas in pterostigma, r-m and dm-cu either absent or widely separated and forming no crossband (fig. 1. 4). 5
2. Apex of cell r₄₊₅ brown; legs brownish or black 3
- Apex of cell r₄₊₅ hyaline; legs yellowish, if brown or black, then thorax entirely yellow. 4
3. Basicostal cell and basal 1/3 of costal cell hyaline; base of ♀ abdomen lightly microtrichose, ♂ abdominal tergites 1–3 with a mid-dorsal microtrichose vitta; legs brownish. *canadensis* (Johnson)
- Wing base and costal cell almost entirely infuscated; abdomen in both sexes shining black; legs blackish. *nigribasis* J. F. McAlpine
4. Wing with 4 crossbands; abdomen matt, grey and brownish; in ♂, tergites 1–3 grey and brownish microtrichose. *ruficeps* van der Wulp
- Wings with 3 crossbands; abdomen subshining brown to bluish-black, often paler basally; abdomen of ♂ mainly shining, tergites 1–3 with a mid-dorsal microtrichose stripe. *narytia* (Walker)
5. Thorax black, greyish microtrichose, only scutellum yellow; legs yellow; wing: crossveins r-m and dm-cu without dark spots (see Kameneva, 2007: fig. 4, 1–2); subapical spot at most reaching vein R₄₊₅. .. *scutellaris* Robineau-Desvoidy
- Thorax uniformly subshining yellow; legs mostly brown; wing: cell c pale brown, cell r₁ with brown spot posterior of cell c; pterostigma entirely brown; isolated brown spots in r₁ distal of R₁ apex, around r-m and dm-cu crossveins; apical spot extending into cell m. *caribbeana* sp. n.

***Herina caribbeana* Kameneva, sp. n. (fig. 1, 2)**

Material. Holotype ♂: Dominica: St. Paul, 0.5 km NE Point Casse, NE slope Trois Pithons, 15.22eN 61.21eW, 560 m, 12.06.1991 (J. E. Rawling, S. A. Thompson) (CMP). Paratypes: 22 ♂, 21 ♀, same labels as in holotype (CMP, USNM, SIZK).

Diagnosis. The new species differs from all other *Herina* species by its entirely yellow mesonotum contrasting with dark brown or black abdomen. It shares the phallus structure (saw-like, with scale-like or diamond-shaped cuticular projections (acanthi) in its medial portion, apically with small membranous glans-like structure that bears a pit-like structure with numerous dark microtrichia) with the North American species of *narytia* group and European *H. scutellaris* Robineau-Desvoidy, 1830 (fig. 2, 4, 3, 2, 4). It also differs from the former by the crossveins r-m and dm-cu not approximated, with distance between them more than 1.5 (1.6–2.2) longer than dm-cu (0.6–1.5 in *narytia* group) and without subbasal of discal crossbands (both present in *narytia* group), shape of surstyli (medial surstylus with short mesal lobe bearing long preniseta instead of long mesal projection bearing rudimentary preniseta in *narytia* group — see fig. 3, 3). It also shares the shape of surstyli and distant r-m and dm-cu with *H. scutellaris* (fig. 3, 1), differing from it by less reduced wing pattern (r-m and dm-cu with dark spots instead of unmarked in *H. scutellaris*), long prenisetae (fig. 2, 3), and much shorter spermathecae.



Fig. 1. *Herina caribbeana* sp. n., ♂ (1, 3–4 — holotype): 1 — habitus, left; 2 — mesonotum and abdomen, dorsal view; 3 — head, lateral view; 4 — wing.

Рис. 1. *Herina caribbeana* sp. n., ♂ (1, 3–4 — голотип): 1 — общий вид, слева; 2 — среднеспинка и брюшко, сверху; 3 — голова, сбоку; 4 — крыло.

Description. Head (fig. 1, 3): length: height: width ratio = 1: 1.33: 1.55; yellow, with brownish ocellar triangle and flagellomere 1, black setose and setulose, with narrowly white microtrichose orbits. Frons matt orange yellow. Eye vertical, 1.85 times as high as long. Parafacial 0.5 times as wide as flagellomere 1, silver microtrichose. Face entirely subshining yellow, carina straight in profile; antennal grooves subshining yellow. Clypeus yellow, as high as width of flagellomere 1; antenna and palp mostly yellow. First flagellomere apically rounded and narrowed, 1.5 times as long as wide, dorsally brownish yellow; arista 3-segmented, entirely brown, short pubescent. Palp yellow, as long and as wide as flagellomere 1, slightly widened in its medial part. Gena brownish-yellow with moderately long setulae, 0.16 times as high as eye. Two vertical, one orbital, one tiny ocellar and one postocellar seta. All setae and setulae black.

Thorax (figs. 1, 1–2): Entirely yellow, rarely with pale brown marks on anepisternum. Mesonotum matt, with very sparse and short whitish microtrichia, not obscuring cuticle. Two supra-alar, one dorsocentral, and 1 acrostichal seta present. Scutellum yellow, with 4 strong setae, devoid of setulae; mediotergite entirely yellow. All setae and setulae black.

Wing (fig. 1, 4). Basicostal and costal cell pale brownish yellow; basal part of cell r1 posterior of costal cell with brownish spot; subbasal crossband not developed. Pterostigma, cell r1 posterior of it, crossveins r-m and dm-cu with isolated brown spots, forming no entire crossband. Apical crossband wide, separated from costa in cells r_{2+3} and r_{4+5} , posteriorly extended into cell m. R_1 vein setulose only on apical half. Vein r-m at level of R_1 apex. Section of M vein between r-m and dm-cu 1.6–1.8 times longer than dm-cu. Calypters and halter white.



Fig. 2. *Herina caribbeana*, sp. n., ♂ (1–4), ♀ (5–6): 1–2 — epandrium (1 — posterior, 2 — left view); 3 — left surstylus, left lateroventral view; 4 — phallus; 5 — aculeus; 6 — spermatheca (one of the three).

Рис. 2. *Herina caribbeana*, sp. n., ♂ (1–4), ♀ (5–6): 1–2 — эпандрий (1 — вид сзади, 2 — слева); 3 — левый сурстиль, сзади и слева; 4 — фаллюс; 5 — вершинный членик яйцеклада; 6 — сперматека (одна из трёх).

Legs: Mostly brown to black, except coxae, knees and two basal tarsomeres yellow, moderately setulose (setae and setulae black), midtibia with one strong ventroapical and two short setae.

Abdomen: brown to black (fig. 1, 2), sometimes with almost inconspicuous bluish sheen, black setulose. Tergites 3–5 wide, with lateral margins extending onto ventral side. Sternites 2–4 subquadrate; male sternite 5 1.3 times as long as wide; membrane between tergites and sternite very narrow. Female tergite 6 slightly (0.75–0.80 times) shorter than tergite 5; sternites 3–6 with thin antero-medial apodemes; sternites 5 and 6 trapezoid, sternite 6 1.5 times as wide as long.

Male terminalia (fig. 2, 1–4). Surstylus (fig. 2, 1–3) as long as epandrium height, almost straight, widely rounded apically, bearing 2 long, smooth, spatulate prenisetae (one on apex of mesal lobe of medial surstylus, second on saddle between it and lateral surstylus; latter with narrow, mesally curved antero-ventral lobe, 8–10 setulae mesally). Hypandrium concave, with smooth membrane, 2 symmetrical gonites, each bearing 2 setu-

lae; sensillar fields lateral to basiphallus (parameres?) absent; phallapodeme dorsoventrally flattened. Sperm pump with ejaculatory apodeme as long as sperm sack. Basiphallus large, bulbous, epiphallic sclerites absent; distal part of phallus (fig. 2, 4) trichose in basal 1/4 and apical 2/5, and saw-like, bearing flat, diamond-shaped acanthi in its medial portion, apically with small membranous glans-like structure, with pit containing numerous dark microtrichia.

Female terminalia: Oviscape short, as long as tergite 6. Aculeus (fig. 2, 5) 1.1 times as long as oviscape and 3 times as long as wide, with elongate oval (twice as long as wide), unmodified cercal unit. Three elongate oval (twice as long as wide), sparsely wrinkled spermathecae (fig. 2, 6) with inverted apical nipple: one separate and 2 on ducts joined far from vagina.

Measurements: WL = 3.8–4.6 mm (σ), 4.1–4.6 mm (φ). BL = 4.5–5.2 mm (σ), 5.0–6.0 mm (φ). AL = 0.8 mm.



Fig. 3. *Herina scutellaris* (1–2) and *H. narytia* (3–4) male genitalia: 1, 3 — epandrium; 2, 4 — phallus. (Fig. 3, 3, 4 modified from Kameneva, 2007.)

Рис. 3. *Herina scutellaris* (1–2) и *H. narytia* (3–4) гениталии самца: 1, 3 — эпандрий; 2, 4 — фаллос. (Рис. 3, 3, 4 — по: Kameneva, 2007, с изменениями.)

Etymology. The name refers to the Caribbean Archipelago, and is considered to be a Latinized adjective.

Comments. It must be noted that the picture of the phallus (Kameneva, 2007: fig. 4, 4) showing a brush-like structure apical to the membranous glans is an artifact: it is a part of the preapical setulose portion accidentally skinned during unrolling the phallus; it was a part of the preapical section of the phallus, and this is corrected in the fig. 3, 4 in this paper, which is a reconstruction based on the existing image (Kameneva, 2007). Thus, the cuticular structures (trichia, microtrichia, acanthi, etc) on the phalli of *H. scutellaris*, *H. narytia* and *H. caribbeana* sp. n. are almost identical; in *H. narytia* the acanthi are scale-like, with serrate apices.

As far as known, a phallus with flattened, scale-like acanthi in its medial part occurs only in *H. scutellaris*, *H. narytia* (and its North American relatives), and *H. caribbeana* sp. n. This character is believed to be a synapomorphy of all the members of the group. Since this character has not been found in Asian *Herina*, the New World species seem to have trans-Atlantic connections with European elements rather than trans-Beringean connections with Asian relationships.

My thanks are due to Chen W. Young (Carnegie Museum of Natural History, Pittsburgh, PA, USA) for sending the type series of the new species. I also greatly appreciate valuable critical comments of David Clements (Glamorgan, UK) and an anonymous referee. Valery A. Korneyev (Schmalhausen Institute of Zoology, Kyiv, Ukraine) kindly prepared the photographs.

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Received 12 January 2013

Accepted 21 March 2013