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A NEW SPECIES OF THE GENUS *HERINA* (DIPTERA, ULIDIIDAE) FROM EASTERN JAVA (INDONESIA)

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A New Species of the Genus *Herina* (Diptera, Ulidiidae) from Eastern Java (Indonesia). Kameneva E. P. — *Herina arjunae* Kameneva, sp. n. from mountain grasslands on volcano Arjuna (at 2000 m a. s. l.) is described and figured. It is closely related to *H. orientalis* (Schiner, 1868) in the very similar position of crossveins on the wing, structure of female aculeus and spermathecae, but differing by its well-developed wing pattern with brown subbasal and apical bands, and with crossvein dm-cu brown emarginated (lacking in *H. orientalis*). Diagnosis and key to species of *Herina orientalis* group are provided.

Key words: Diptera, Ulidiidae, Otitini, *Herina*, Indonesia, Java, new species.

Новый вид рода *Herina* (Diptera, Ulidiidae) с Восточной Явы (Индонезия). Каменева Е. П. — Описана *Herina arjunae* Kameneva, sp. n. с горных лугов на склонах вулкана Арджуна (2000 м н. у. м.). Вид сходен с *H. orientalis* (Schiner, 1868) по расположению поперечных жилок, строению вершинного членика яйцеклада и сперматек самки, отличаясь от него развитым рисунком крыла с выраженными суббазальной и апикальной перевязями, а также бурookаймленной поперечной жилкой dm-cu (отсутствуют у *H. orientalis*). Приведены диагноз группы видов *Herina orientalis* и таблица для определения.

Ключевые слова: Diptera, Ulidiidae, Otitini, *Herina*, Индонезия, Ява, новый вид.

Introduction

The picture-winged flies (Ulidiidae) are poorly represented in the Oriental and Australasian Regions: of the 700 species worldwide, only about 40 species occur here (including Oceania, whose fauna has clearly Neotropical connections and origin). Most Oriental and Papuan species belong in the genus *Herina* Robineau-Desvoidy, 1830 and are restricted within the tropical biotae to the high mountain grasslands.

Herina includes about 40 species and is one of the largest and most widespread genera of the family, and the only ulidiid genus native in the Oriental Region and the Papuan Subregion of the Australasian Region. The genus has been recently revised for Asia (Kameneva, 2006, 2007; Kameneva, Pljushtch, 2010; Kameneva, Korneyev, 2012; Morgulis et al., in press; Mohamadzade, Kameneva, in press).

A hitherto undescribed species omitted from these revisions is described and figured below.

Material and methods

The specimens were received from the collection of the Zoological Museum, University of Amsterdam (now incorporated into the collection of the Nationaal Natuurhistorisch Museum Naturalis, Leiden).

Morphological terminology follows Kameneva (2006). The type specimens are deposited in collections of the following institutions:

RMNH — Nationaal Natuurhistorisch Museum Naturalis, Leiden.

SIZK — I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kyiv, 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 orientalis group of species

Syn. *Rhadinomyia* Schiner, 1868: 290.

Type species: *Rhadinomyia orientalis* Schiner, 1868, by monotypy.

Diagnosis. This group of species can be separated from other *Herina* species by the combination of the following characters: mesonotum sparsely microtrichose, cuticle

visible; postpronotal and acrostichal setae absent, only one supra-alar seta; male: surstylus with conspicuous visor-like mesal lobe bearing 3–5 prensisetae on its ventral side, female: aculeus wide, 2–2.5× as long as wide, with almost cylindrical, narrow sclerotized cercal unit < 0.3× as wide as aculeus.

Three described and one new species from the Oriental Region (Malayan Peninsula to Java): *H. orientalis* (Schiner, 1868), *H. conjuncta* (de Meijere, 1914), *H. macalpinei* Kameneva, 2006, and *H. arjunae* sp. n.

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

Material. Holotype ♂, "Ardjoeno-geb., Java, 2000 m, grasslands, [K. W.] Dammerman leg." [handwritten with ink; no other data of collecting given] (RMNH). Paratypes: 5 ♀, same labels as in holotype (RMNH, SIZK).

Diagnosis. This species can be recognized by the following combination of characters: the wing with well-developed subbasal crossband, and with apical crossband allied to the costa from the apex of cell r_1 to vein R_{4+5} or M, brown spots at the apex of vein R_1 and around crossveins r-m and dm-cu separated forming no crossband; mesonotum and abdomen sparsely brownish microtrichose, without grey microtrichose bands or vittae; postpronotal and acrostichal setae lacking.

It is very similar to *H. orientalis* (Schiner) in the wing venation (the vein r-m is situated at the level of vein R_1 apex, and the crossvein dm-cu is distally of it), female (shape of aculeus: cercal unit small, with posteriorly projected long medial ridge, spermathecae 7–8 times as long as wide) and, apparently, male genitalia, differing from that species only by the well-developed wing pattern (with brown subbasal and apical bands, and brown emarginated with crossvein dm-cu (lacking in *H. orientalis*, except small subapical spot at apex of the cell r_1).

Description. Head (fig. 1, *2*): length: height: width ratio = 1 : 1.15 : 1.33. Frons matt, with orange frontal vitta, very narrow silver microtrichose bands along eye mar-

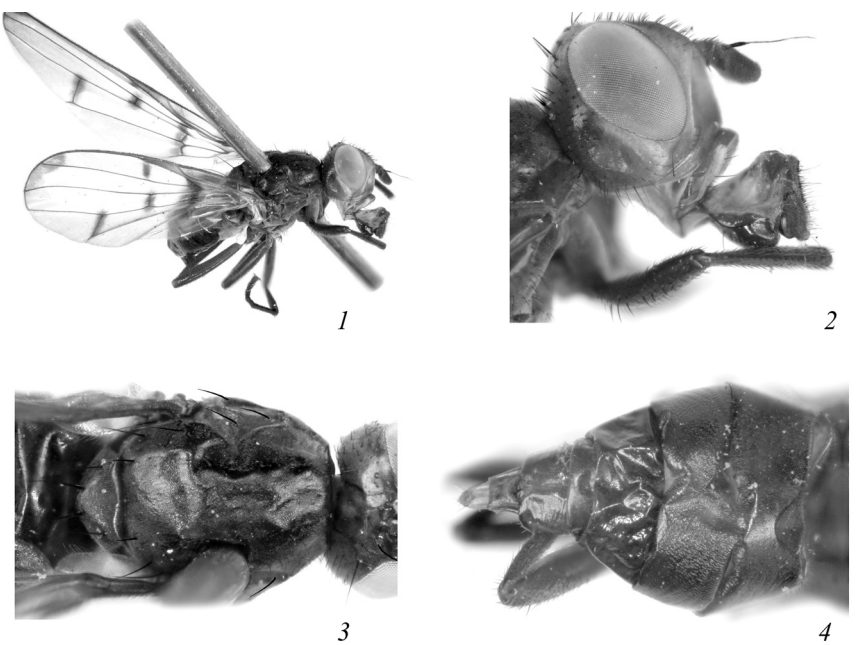

Fig. 1. *Herina arjunae* sp. n., holotype ♂ (*1–3*) and paratype ♀ (*4*): *1* — habitus, right; *2* — head, lateral view; *3* — mesonotum, dorsal view; *4* — abdomen, dorsal view.

Рис. 1. *Herina arjunae* sp. n., голотип ♂ (*1–3*) и паратип ♀ (*4*): *1* — общий вид, справа; *2* — голова, сбоку; *3* — среднеспинка, сверху; *4* — брюшко, сверху.

gins and moderately long black and dense setulae. Ocellar triangle and vertical plates black. Parafacial as wide as 1st flagellomere, silvery microtrichose. Face yellow, subshining, carina straight in profile, subshining, antennal grooves yellow, white microtrichose in depression. Antenna dark yellow, with 1st flagellomere bicolored, yellow in ventrobasal 1/3 and dark brown to black in the rest; short, 1.4–1.5 times as long as wide; arista dark brown. Clypeus brown. Palp yellow, narrow, with 4–5 long setae (1.5× as long as palp width). Gena brown with moderately long setulae, narrow, 0.3 times as high as eye vertical diameter. Occiput black to brown medially, slightly microtrichose. Ocellar setae as long as ocellar triangle. Two orbital setae. Inner and outer vertical setae, as well as postocellar setae well-developed.

Thorax (fig. 1, *1, 3*). Completely brown. Pleura uniformly greyish and scutellum almost subshining. Mesonotum sparsely brown microtrichose, without microtrichose vittae. Mediotergite sparsely microtrichose. One supra-alar, one dorsocentral, one postalar seta;

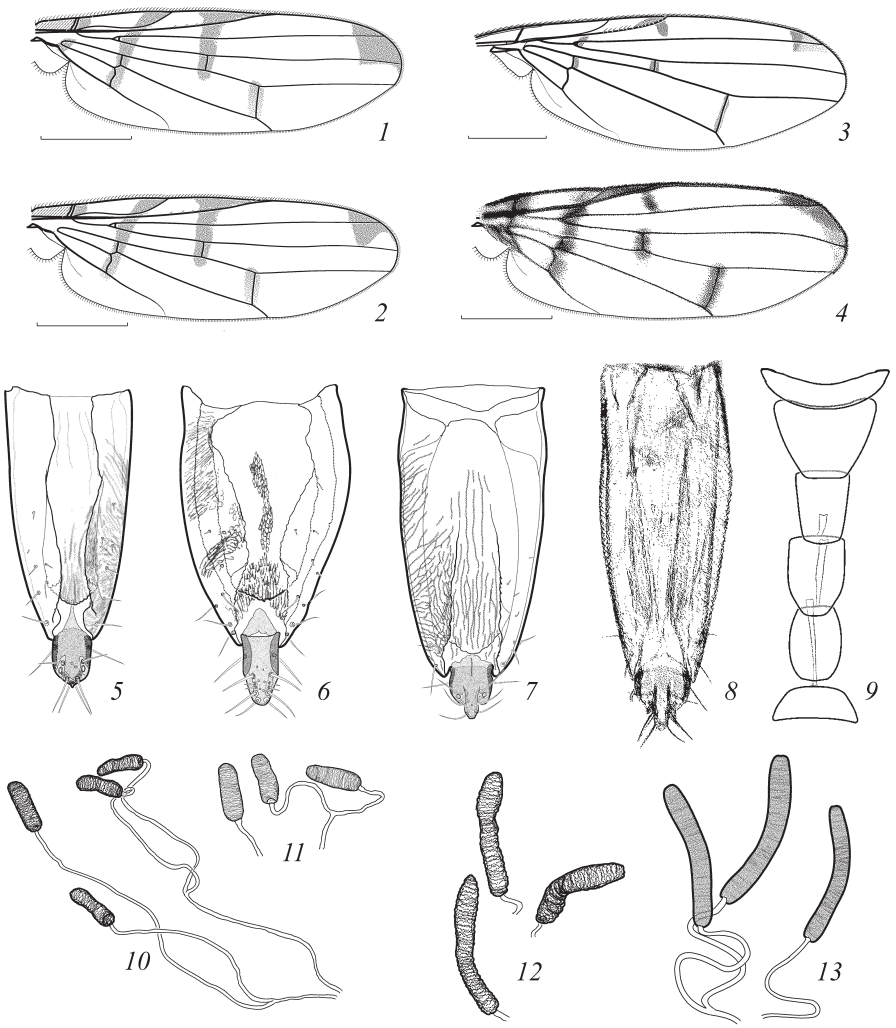

Fig. 2. *Herina conjuncta* (*1, 5, 10*), *H. macalpinei* (*2, 6, 11*), *H. orientalis* (*3, 7, 12*) and *H. arjunae* sp. n. (*4, 8, 9, 13*): *1–4* — wing; *5–8* — aculeus; *9* — ♀; abdominal sternites; *10–13* — spermathecae).

Рис. 2. *Herina conjuncta* (*1, 5, 10*), *H. macalpinei* (*2, 6, 11*), *H. orientalis* (*3, 7, 12*) и *H. arjunae* sp. n. (*4, 8, 9, 13*): *1–4* — крыло; *5–8* — вершинный членик яйцеклада; *9* — брюшные стерниты ♀; *10–13* — сперматеки).

anepisternal setula long; two notopleural, one anepisternal, one katepisternal setae. Postpronotal and acrostichal seta lacking. All setae and setulae black.

Wing (fig. 2, *4*). Hyaline with two brown crossbands and three isolated spots. Basal costal cell and base of costal cell pale brownish. Subbasal crossband extending from apical half of costal cell through Rs fork slightly over CuA_1 vein into base of cua_1 cell. Apical two-thirds of pterostigma brown; discal crossband broken, from apex of R_1 reaching to vein R_{2+3}; isolated brown spot on r-m . Vein dm-cu surrounded by isolated spot. Apical crossband narrow, reaching from apex of cell r_1 to vein M. Vein r-m proximally at level of R_1 apex. R_1 vein setulose only on apical half. Postero-apical corner of cell bcu slightly acute. Calypters and halter white.

Legs. Entirely brown, moderately setulose (setae and setulae black), midtibia with two strong ventroapical setae.

Abdomen. Brown to black (fig. 1, *4*), finely and sparsely white microtrichose, with very short and fine brownish setulae. Tergites 3–5 wide, with lateral margins extending onto ventral side. Sternites 1–2 trapezoid, 3–4 subquadrate; male sternite 5 1.3 times as long as wide; membrane between tergites and sternite very narrow. Female tergite 4 finely pitted, with microtrichia denser than on other tergites, but not hiding underlying cuticle, and with medial area less sclerotised and conspicuously shriveled in all females (fig. 1, *4*), similarly to that in *H. orientalis* (Kameneva, 2006: fig. 77); tergites 5 and 6 shining; tergite 6 almost half as long as tergite 5; sternites 3–6 with thin antero-medial apodemes; sternites 5 and 6 trapezoid, sternite 6 1.5 times as wide as long (fig. 2, *9*).

Male terminalia. Not dissected in the holotype, in situ looking like those figured for *H. orientalis* (Kameneva, 2006: fig. 79–80).

Female terminalia. Oviscape short, as long as tergite 6. Aculeus (fig. 2, *8*) wide, with small, sclerotized cercal unit with medial ridge long, projected posteriorly. Three long, sausage-like spermathecae, 7–8 times as long as wide (fig. 2, *13*): one separate and 2 on ducts joined far from vagina.

Measurements. WL = 4.8 mm (♂), 5.0–5.7 mm (♀). BL = 4.0 mm (♂), 4.5–5.2 mm (♀). AL = 0.65 mm.

Etymology. The species is named for its type locality, Mt. Arjuna (Dutch: Ardjoeno; Javanese: Arjuno), a high volcano, reaching 3,339 m a. s. l. in Eastern Java (Indonesia); Arjuna (Sanskrit: "bright" or "silver") is the hero of the Hindu epic Mahabharata. The name is considered to be a Latinized noun in genitive.

Comments. The differences between the flies described here and *H. orientalis* lie in the details of the more developed wing pattern, whereas the female and possibly male genitalia look very similar. *H. orientalis* is known only from Western Java, and *H. arjuna* sp. n. from Eastern Java, representing two isolated mountain populations, either vicariant species, or perhaps, subspecies. Further studies are necessary, if both species are still extant, as no specimens have not been collected since 1928.

Karel Willem Dammerman (1885–1951), the Dutch naturalist, entomologist and botanist, curator (1919–1932) and director (1932–1939) of the Zoological Museum in Buitenzorg (Bogor), director of the Bogor Botanical Gardens (1939–1940) and President of the Dutch Entomological Society (1947–1951), is known mainly from his studies on the re-colonization of Krakatau volcano after its explosion in 1883. The type series was collected between 1910 and 1919; other Diptera material collected in this locality is mentioned by Stein (1920).

Key to species of *H. orientalis* group
Таблица для определения видов группы *H. orientalis*

1. Crossvein r-m proximal of R_1 apex, crossvein dm-cu at level of R_1 apex (fig. 2, *1–2*). Mesonotum with 3 greyish microtrichose vittae. Female: abdominal sternites 3–5 transverse, wider than long and wider than sternite 6; spermathecae short, 3–3.5 times as long as wide (fig. 2, *10, 11*). 2
— Crossvein r-m at R_1 apex, crossvein dm-cu conspicuously distal to R_1 apex level (fig. 3–4). Mesonotum uniformly subshining, without vittae. Female: abdominal sternites 3–5 longitudinal, longer than wide and narrower than sternite 6; spermathecae long, 7–8 times as long as wide (fig. 2, *12, 13*). 3

2. Apical spot bar-like, covering entire apex of cell r_{2+3} and usually extending beyond R_{4+5} vein (fig. 2, *1*). Abdominal tergite 3 uniformly subshining. Female: cercal unit short, only 1.5 times as long as wide (fig. 2, *5*). Male: surstylus with 6 prensisetae of different size (visible from ventral side only). Malayan Peninsula, Java, Borneo. ..... *conjuncta* de Meijere
— Apical spot comma-like, leaving postero-apical angle of cell r_{2+3} hyaline (fig. 2, *2*). Abdominal tergite 3 basally with conspicuous bluish-grey transverse microtrichose band. Female: cercal unit elongate, twice as long as wide (fig. 2, *6*). Male: surstylus with 3–4 subequal prensisetae (visible from ventral side only). Borneo. .... *macalpinei* Kameneva
3. Wing pattern reduced: basicostal and costal cells hyaline, subbasal crossband absent, vein dm-cu not emarginated with brown apical spot small, restricted to apex of cell r_1 and not reaching apex of vein R_{4+5}. Sumatra, Western Java. ..... *orientalis* Schiner
— Wing pattern well developed: basicostal cell and base costal cell brown, subbasal crossband reaching bcu cell, vein dm-cu brown emarginated, wing apex with narrow band along margin between apex of cell r_1 and reaching apex of M or at least apex or vein R_{4+5}. Eastern Jav. ..... *arjunae* sp. n.

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