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Some new records of the muscid fauna from Iran, with the description of *Helina irani* spec. nov (Diptera: Muscidae)

Eberhard Zielke**Abstract**

The study of unidentified muscids collected in recent years in Iran and deposited in the entomological collections of the Moravian Museum, Brno, Czech Republic and the Institute of Biodiversity and Ecosystem Research, Sofia, Bulgaria respectively, revealed twelve different species which belong to seven genera of the family Muscidae. Six species, *Phaonia erronea* (Schnabl, 1887), *Phaonia trimaculata* (Bouché, 1834), *Helina evecta* (Harris, 1780), *Lispe pectinipes* Becker, 1903, *Lispocephala mikii* (Strobl, 1893) and *Thricops bukowskii* (Ringdahl 1934) are newly recorded from Iran. One species, *Helina irani* spec. nov. is described. Based on literature-references and the current investigation a table is provided, listing all 79 muscid species hitherto known from the country.

Keywords: Diptera, Muscidae, newly recorded, new species, Iran, list of species

Introduction

The family of Muscidae is large and very speciose, with a worldwide distribution. Although species have been collected practically in every biogeographic region, the knowledge of the Muscidae is based primarily on the muscid fauna of those few countries, where Muscidae has been investigated more intense. From many large geographical regions, however, only little information on the distribution of Muscidae-species is available. This applies also for some parts of West Asia. For example, when studying unidentified muscid flies, collected in recent years in Iran, no compilation of the species, which are known from Iran, were found in literature. Although in total only 30 specimens, deposited at the collections of the Moravian Museum, Brno, Czech Republic (MM) and the Institute of Biodiversity and Ecosystem Research, Sofia, Bulgaria (IBER) respectively, were investigated, twelve different species belonging to seven genera were identified. Six of the species belonging to the genera *Phaonia* Robineau-Desvoidy, 1830, *Helina* Robineau-Desvoidy, 1830, *Lispe* Latreille, 1796, *Lispocephala* Pokorný, 1893 and *Thricops* Rondani, 1856 are new records for Iran and in addition one new species of the genus *Helina* is described. The localities of the twelve species collected and a list of the 79 species, hitherto reported in literature from Iran, are presented.

Materials and Methods

For identification of the flies primarily the keys to the Muscidae of the Palearctic Region by Hennig^[1] and additionally the keys to the Muscidae of Central Europe published by Gregor et al.^[2, 3] were used.

External morphological features of the specimens were examined using a ZEISS Stemi 2000-C stereomicroscope. For the investigation of male terminalia the end of the abdomen was removed and placed in 10% KOH solution for about three hours at room temperature. Later it was washed, transferred to glycerine and dissected. After studying the terminalia were stored in a microvial containing glycerine. The microvial was pinned directly underneath the associated specimen. For illustrations an AxioCam ERc5s camera and for further processing Helicon Focus 6 and Adobe Photoshop CS2 were applied.

Standard terminologies are used for the description. Body length was measured in millimeters (mm).

The classification of the Muscidae and the synonyms as applied by Gregor *et al.*^[3] are also used in this paper. Subfamilies, genera and their species are listed alphabetically, and the sites of collecting chronologically. Comments are added when pertinent.

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If not mentioned differently the specimens listed below are deposited in the collection where they originate from. Few specimens from MM, however, are housed in the collection of IBER. They are recorded as "at IBER".

Results

Species of the following subfamilies of Muscidae were identified:

Subfamily Azeliinae

Thricops bukowskii (Ringdahl)

Material examined from MM: 2♂ (+2♂ at IBER), Mázandarán province 3,2 km S Kandelous, 36°17'53,35"N51°34'38,97"E; 1.877 m; 04.06.2015; leg. M. Oboril. **New record from Iran.**

Subfamily Muscinae

Musca autumnalis De Geer

Material examined from MM: 1♂1♀, Mázandarán province 3, 2 km S Kandelous, 36°17'53,35"N51°34'38,97"E; 1.877 m; 04.06.2015; leg. M. Oboril.

Musca domestica Linnaeus

Material examined from MM: 1♂, Fars province, 58 km NW Siraz Sangar 2 km W, 29°59'37,08"N52°7'56, 65"E; 2.194 m; 2.-26.5.2015; leg. M. Oboril.

Subfamily Phaoninae

Atherigona varia (Meigen)

Material examined from IBER: 1♂, Fars province Shiraz, 29°36'N, 52°28'E; 1.578 m; 26.-28.5.2014; leg. S. Rezaei. 1♀, Fars province Noor Abad (Fahlian), 30°11'31"N,51°29'17"E; 898 m; 20.4.-6.5.2016; leg. M. Sadeghi. 1♂, Fars province Shiraz (Ghasrodasht), 29°41'46"N,52°28'41"E; 1.656 m; 24.4.-20.5.2016; leg. M. Sadeghi. 1♂, Fars province Marvadasht (Firoozi), 29°55'23"N,52°50'22"E; 1.615 m; 2.-15.5.2016; leg. M. Sadeghi. 1♀, Fars province Kazeroon (Zavali), 29°32'53"N,51°46'23"E; 829 m; 13.-27.5.2016; leg. M. Sadeghi. 2♂, Fars province Marvadasht (Firoozi), 29°55'23"N,52°50'22"E; 1.615 m; 15.-29.5.2016; leg. M. Sadeghi. 1♀, Maharloo (Posht par), 29°19'08"N, 52°51'07"E; 1.495 m; 2.-20.9.2016; leg. M. Sadeghi.

Helina evecta (Harris)

Material examined from MM: 3♀ (+2♀ at IBER), Fars province 15 km S Dasht Arjan, 29°33'8,75"N51°56'22,22"E; 2.261 m; 2.-6.5.2016; leg. M. Oboril. **New record from Iran.**

Helina irani spec. nov.

Material examined from MM: Male holotype and six male paratypes all collected by M. Oboril. The specimen were slightly dirty, and as they were preserved in ethanol before they were fixed on a pin, they had shrunk. The male holotype was lacking the right mid leg and the apical third of the right wing. Additionally, each one of the paratypes was lacking one or more legs and all specimens had lost some of the large setae. These defects, however, did not impair determination and description of the species.

The locality labels of all types read:

"IRÁN, Kohgiluže a Bójer-Ahmad prov., 20km S of Jásúdz Tang-e-Sorkh 13km S; 30°29'25.78"S;51°39'26.64"V; 2144 m.n.m.; 30.v.2015".

The holotype and three male paratypes of the newly described species were deposited in the collection of MM, Brno and three male paratypes were deposited in the entomological collection of IBER, Sofia.

Description. Head: Ground-colour black and from the lateral point of view greyish dusted. Eyes with few short hairs. Shortest distance between eyes shorter than twice the diameter of anterior ocellus. Fronto-orbital plate at narrowest part about half as broad as anterior ocellus and touching on upper half of frons. Frons with a very short section of frontal vitta in front of the anterior ocellus, the lower half of fronto-orbital plates separated by a triangular-shaped section of frontal vitta. Parafacial midway about as broad as width of postpedicel, getting very narrow in the lower half. In profile upper mouth margin slightly behind profrons. Genal depth below lowest eye margin at least 1.5 times the width of postpedicel. When viewed from the anterior, fronto-orbital plates, parafacials and anterior part of genae white or at certain point of view silvery white pruinose, upper and lower part of frontal vitta contrasting black with little grey dust. Antennal segments all dark. Postpedicel 2.3 times as long as broad and about twice as long as pedicel. Arista twice as long as postpedicel, longest hairs of arista at most slightly longer than width of postpedicel. About anterior two thirds of fronto-orbital plate with about five strong frontal setae, the upper ones shorter than the lower setae, and with 2 or 3 strong interstitial setulose hairs between and slightly above the frontal setae, upper third of frons bare. Parafacial bare. Vibrissal setae long and strong, surrounding peristomal setae distinctly weaker, longest ones at most half as long as vibrissals. Lower surface of gena, post-genal and post-occipital surfaces covered with dark setulose hairs. Proboscis dark and short, labella not very broad; palpus black and slender.

Thorax: Ground-colour dark, densely grey dusted. Scutum with a pair of narrow paramedian, shining dark stripes inside along the dorsocentral setae from neck throughout to the 3rd postsutural dorsocentral seta, outside along each row of dorsocentrals another stripe similar to the inner one. Scutellum and pleura dark, uniformly greyish dusted without dark markings. Anterior and posterior spiracles greyish-white. Scutum covered with setulose hairs. Dorsocentral setae 2 + 3; acrostichals 0+1; notopleuron with two notopleural setae, anterior one only slightly stronger and longer than posterior one, the latter one surrounded by (1-6) well-developed setulose hairs; prealar seta weak and at most half as long as posterior notopleural seta; 2 intra-alar setae. Prosternum, proepimeral area, anepimeron, meron and katepimeron bare. Katepisternum with hairs and with 2+2 katepisternal setae. Anepisternum at posterior margin with a row of about five long setae varying in length and strength and with several elongated hairs. Scutellum with long apical and lateral setae, basal and preapical setae significantly shorter and weaker; upper surface covered with hairs, laterally bare, ventral surface haired.

Wing: Membrane greyish, cross-veins not infuscated; veins uniformly dark brown. Costal spine distinct, longer than three times the length of neighboring bristles. Radial node ventrally with several setulae. Vein M1 straight, apically parallel to vein R4+5. Cross-vein r-m basal from the point where vein R1 enters costa, distal cross-vein dm-cu oblique, slightly sinusoid. Calypters whitish transparent with a very weak yellowish tinge, lower calypter about 1.5 times as long as upper calypter. Haltere yellow.

Legs: All black, knees yellowish-brown. Pulvilli and claws of front leg slightly longer than tarsomere 5, of the posterior legs almost as long as the corresponding tarsomere. Hind coxa bare on posterior surface. Fore femur with complete rows of strong posteroventrals and posterodorsals; all setae about as

long or longer than depth of femur; between the posterodorsal and posteroventral rows on the upper surface a complete row of distinctly shorter posterior setae. Fore tibia without median posterior seta. Mid femur with a row of anterodorsal setae, at basal half setae elongated but not as long as depth of femur, in distal half significantly shorter; a row of hair-like anteroventrals not much longer than ground-hair; with a row of about 5 strong posteroventral setae distinctly longer than depth of femur at basal half and significantly shorter setulose hairs in distal half; pre-apically a short anterodorsal and three long posterior to posterodorsal setae. Mid tibia with two posterior setae, longer than diameter of tibia. Hind femur with complete rows of numerous anterodorsal, anteroventral and posteroventral setae; all anterodorsal setae strong and longer than depth of femur, the distal setae slightly shorter than the middle and basal ones; anteroventral setae all about equally strong and longer than depth of femur, the longest ones almost twice as long as depth of femur; posteroventral setae about equally setulose and the longest ones not much longer than depth of femur; pre-apically two distinct posterior to posterodorsal setae. Hind tibia with three or four anterodorsal setae, two or three anteroventrals and distally at basal third of tibia one posterodorsal seta, all setae slightly longer than diameter of tibia, but anteroventrals distinctly weaker developed than the others.

Abdomen: Usually cylindrical, ground-colour dark. Tergites uniformly grey without median stripes. Tergites 3 and 4 each one with a distinct pair of dark paramedian round or oval patches not reaching the margins of tergites. Tergite 3 with a complete row of marginals, tergites 4 and 5 with complete rows of discals and marginals. Sternites all shining black, contrasting with the grey ventral parts of tergites; sternites 3 and 4 at least about as long as wide; sternite 1 bare, sternites 2 to 5 not conspicuously long haired, longest hairs at most slightly longer than length of corresponding sternite, sternite 5 slightly protruding.

Male genitalia: See Figure 1.

Measurements. Length of body about 6 mm; length of wing about 6 mm.

Female not known.

Diagnosis: This species runs in Hennig's ^[1] key to the males of *Helina* species of the Palaearctic Region to couplet 13 with *Helina moedlingensis* (Schnabl, 1911). However, this species as discussed by Hennig ^[1] has been divided by Mihályi ^[4] into two species. Specimens formerly identified as *H. moedlingensis* were either confirmed as *H. moedlingensis* or assigned to *Helina decipiens* Mihályi, 1974. In the later published keys to the Central European Muscidae ^[2, 3], which consider both species, the taxonomic characters of *H. irani* lead to *H. decipiens* at couplet 14. Both species are quite similar. But comparison of *H. irani*-specimens with males, and in particular with five male paratypes of *H. decipiens*, which were kindly provided by the Hungarian Natural History Museum, Budapest, revealed several distinct differences between the two species:

The frons of *H. decipiens* is broader than width of postpedicel and fronto-orbital plates are separated throughout by a frontal vitta; notopleuron without setulae; the rows of anteroventrals and posteroventrals of hind femur divided into a basal part with long setulose hairs and the remaining distal two thirds or half of femur with about equally long but strongly developed setae, the length of longest ones about twice as long as depth of femur; sternites 3 and 4 of abdomen significantly broader than long, sternites covered with conspicuously long hairs, some of them almost as long as hind metatarsus.

The frons of *H. irani* not as broad as postpedicel, barely twice as wide as diameter of anterior ocellus, fronto-orbital plates are touching, frontal vitta is divided into two sections, a very short one below the anterior ocellus, and a larger lower triangular section in anterior part of frons; notopleuron with well developed setulae close by the posterior notopleural seta; the rows of anteroventrals and posteroventrals of hind femur with about equally strong setae all over the length and without hair-like setae in basal third, all anteroventral setae usually distinctly longer than depth of femur and all posteroventrals usually barely as long as or at most slightly longer than depth of femur; sternites 3 and 4 at least as long as broad, hairs of sternites not much longer than the corresponding sternite, not reaching the length of hind metatarsus.

***Helina reversio* (Harris)**

Material examined from MM: 2♀, Kohgiluyeh a Bóje-Ahmad province 20 km S Tang-e-Sorkh, 30°29'25,78"N51°39'26,64E; 2.144 m; 30.05.2015; leg. M. Oboril.

***Phaonia erronea* (Schnabl)**

Material examined from MM: 1♂, Kohgiluyeh a Bóje-Ahmad province 20 km S Tang-e-Sorkh, 30°29'25, 78"N51°39'26,64E; 2.144 m; 30.05.2015; leg. M. Oboril. **New record from Iran.**

***Phaonia trimaculata* (Bouché)** Material examined from MM: 1♀, Mázandarán province 3, 2 km S Kandelous, 36°17'53,35"N51°34'38,97"E; 1.877 m; 04.06.2015; leg. M. Oboril. **New record from Iran.**

Subfamily Coenosiinae

***Coenosia attenuata* Stein**

Material examined from IBER: 1♂, Fars province Marvasht (Firoozi) 29°55'23"N,52°50'22"E; 1.615 m; 2.-15..5.2016; leg. M. Sadeghi. 1♂, Fars province Marvasht (Firoozi) 29°55'23"N,52°50'22"E; 1.615 m; 15.-29.5.2016; leg. M. Sadeghi.

***Lispe pectinipes* Becker**

Material examined from IBER: 1♂, Fars province Shiraz 29°36'N; 52°28'E; 1578 m; 28.7.-2.8.2014; leg. S. Rezaei. 1♀, Maharloo (Posht par), 29°19'08"N,52°51'07"E; 1.495 m; 2.-20.9.2016; leg. M. Sadeghi. **New record from Iran.** *L. pectinipes* was still considered to be synonym to *Lispe leucospila* (Wiedemann, 1830) when Hennig ^[1] published the revision of the Muscidae of the Palaearctic Region, therefore these specimens from Iran run to *L. leucospila* when using his keys. Pont ^[5], however, noted in 1986 that *L. leucospila* probably does not occur in the Palaearctic region and that all *L. leucospila* identified from this region are *L. pectinipes*. In 1991^[6] he qualified this statement and referred to future investigations. Using the keys to the various species groups of the genus *Lispe* Latreille, 1796 presented by Vihrev ^[7] more recently, both specimens were identified as *L. pectinipes*.

***Lispocephala mikii* (Strobl)**

Material examined from IBER: 1♂, Fars province Shiraz, 29°36'N;52°28'E; 1578 m; 28.7.-2.8.2014; leg. S. Rezaei. **New record from Iran.**

Discussion

There are only few records of Iranian Muscidae available in literature. Hennig ^[1] mentioned in his review on Palaearctic Muscidae some species from Iran, and Pont ^[8] identified 1972 among others seven species of Muscidae which had been

collected in Iran. More information on distribution of muscid species in Iran is to be found with Pont^[5] in the Catalogue of Palaearctic Diptera and in his publications on Muscidae from Turkey and the Middle East in 1991^[6] and from Armenia^[9] in 2005 respectively. Khoobdel & Davari^[10] and Moradi *et al.*^[11] reported a new record of one species each in 2011 and 2013 respectively, and Moradi *et al.*^[12] listed in 2013 seven muscids as new from Iran. The first Palaearctic records of *Passeromyia heterochaeta* (Villeneuve, 1915) and *Pygophora immaculipennis* Frey, 1917 were reported from Iran by Grzywacz *et al.*^[13] in 2014 and Parchami-Araghi *et al.*^[14] in 2017, respectively. Vikhrev *et al.*^[15] reported *Phaonia arida* Zinoviev, 1982 and Zielke^[16] described two new species of the genus *Helina* from Iran in 2017. The current investigations revealed six new records and a description of another new *Helina* species from the country.

The number of known Iranian muscid species calculated by Moradi *et al.*^[12] "so far only some 60 species of Muscidae have been recorded in Iran" is slightly different from the calculation presented here, probably due to the sources which have been the basis for counting. As the authors^[12] did neither name the single sources on which their calculation of the total number of Iranian Muscidae is based nor did they provide a list of all known species, direct comparison with the current findings is not feasible. In two cases, however, the reporting^[12] had to be adjusted. The authors^[12] noted that

Khoobdel & Davari^[10], who reported *Muscina stabulans* (Fallén) as new from Iran, did not consider that the species had been recorded already by Pont^[8] in 1972. But the only two specimens of *M. stabulans* mentioned in the publication by Pont^[8], had been collected in Azerbaijan. Moradi *et al.*^[12] also reported *Haematobia titillans* (Bezzi) as new for the Iranian fauna, although the species had already been listed for Iran with some doubt by Pont^[5] in 1986.

For the current update, 61 Muscidae species were found in literature to be known from Iran, before Moradi *et al.*^[12] reported in 2013 six valid new records. Since then three new records^[13, 14, 15] and two newly described species^[16] were added. Together with the six new records and the description of another new *Helina* species of the current investigation, the total number amounts now to 79 Muscidae species recorded from the country. They are listed in Table 1.

Table 1: Muscidae species recorded from Iran. (No. = running number; Ref. = literature references in chronological order: 1 = Pont (1971)^[8]; 2 = Pickens & Miller (1980)^[17]; 3 = Pont (1986)^[5]; 4 = Pont (1991)^[6]; 5 = Shinonoga & Pont (1992)^[18]; 6 = Pont *et al.* (2005)^[9]; 7 = Parchami-Araghi *et al.* (2009)^[19]; 8 = Khoobdel & Davari (2011)^[10]; 9 = Moradi *et al.* (2013)^[11]; 10 = Moradi *et al.* (2013)^[12]; 11 = Grzywacz *et al.* (2014)^[13]; 12 = Parchami-Araghi *et al.* (2017)^[14]; 13 = Vikhrev *et al.* (2017)^[15]; 14 = Zielke (2017)^[16]; 15 = current investigation)

Table 1

No.	Subfamily Azelinae	Ref.	No.	Ref.
1	<i>Hydrotaea armipes</i> (Fallén 1825)	3;6	41	<i>Helina oborili</i> Zielke 2017
2	<i>Hydrotaea borussica</i> Stein 1899	1;3	42	<i>Helina parcepilosa</i> (Stein 1907)
3	<i>Hydrotaea capensis</i> (Wiedem. 1818)	3	43	<i>Helina reversio</i> (Harris 1780)
4	<i>Hydrotaea floccosa</i> Macquart 1835	3;6	44	<i>Phaonia arida</i> Zinoviev 1983
5	<i>Hydrotaea ignava</i> (Harris 1780)	3;6	45	<i>Phaonia erronea</i> (Schnabl 1887)
6	<i>Hydrotaea meteorica</i> (Linnaeus 1758)	1;3;6	46	<i>Phaonia pallida</i> (Fabricius 1787)
7	<i>Hydrotaea velutina</i> Rob.-Desv. 1830	1;3	47	<i>Phaonia mediterranea</i> Hennig 1963
8	<i>Muscina levida</i> (Harris 1780)	9	48	<i>Phaonia trimaculata</i> (Bouché 1834)
9	<i>Muscina stabulans</i> (Fallén 1817)	8;9	49	<i>Phaonia valida</i> (Harris 1780)
10	<i>Passeromyia heterochaeta</i> (Vill. 1915)	11		Subfamily Mydaeinae
11	<i>Thricops bukowskii</i> (Ringdahl 1934)	15	50	<i>Graphomyia maculata</i> (Scopoli 1763)
12	<i>Thricops nigrifrons</i> (Rob.-Desv. 1830)	1;3;4;6	51	<i>Gymnodia eremophila</i> (B. & B. 1894)
	Subfamily Muscinae		52	<i>Gymnodia tonitru</i> (Wiedemann 1824)
13	<i>Dasyphora pratorum</i> (Meigen 1826)	10	53	<i>Myospila mediatubunda</i> (Fabricius 1781)
14	<i>Eudasyphora cyanella</i> (Meigen 1826)	3	54	<i>Hebecnema nigra</i> (Rob.-Desv. 1830)
15	<i>Eudasyphora cyanicolor</i> (Zett. 1845)	3	55	<i>Hebecnema vespertina</i> (Fallén 1823)
16	<i>Haematobia irritans</i> (Linnaeus 1758)	3;9		Subfamily Coeonisiinae
17	<i>Haematobia titillans</i> (Bezzi 1907)	3;10	56	<i>Coenosia atra</i> Meigen 1830
18	<i>Musca albina</i> Wiedemann 1830	3	57	<i>Coenosia attenuata</i> Stein 1903
19	<i>Musca autumnalis</i> De Geer 1776	2;9;15	58	<i>Coenosia tigrina</i> (Fabricius 1775)
20	<i>Musca biseta</i> Hough 1898	10	59	<i>Limnophora beckeri</i> (Stein 1908)
21	<i>Musca crassirostris</i> Stein 1903	3;4;9	60	<i>Limnophora bipunctata</i> (Stein 1908)
22	<i>Musca domestica</i> Linnaeus 1758	1;3;9;15	61	<i>Limnophora obsignata</i> (Rondani 1866)
23	<i>Musca larvipara</i> Porchinsky 1910	3;6	62	<i>Limnophora persica</i> Hennig 1959
24	<i>Musca lucidula</i> (Loew 1856)	3	63	<i>Limnophora tigrina</i> (Am Stein 1860)
25	<i>Musca lusoria</i> Wiedemann 1824	3	64	<i>Lispe apicalis</i> Mik 1869
26	<i>Musca osiris</i> Wiedemann 1830	3;4;6	65	<i>Lispe assimilis</i> Wiedemann 1824
27	<i>Musca sorbens</i> Wiedemann 1830	3;9	66	<i>Lispe bivittata</i> Stein 1909
28	<i>Musca tempestiva</i> Fallén 1817	3	67	<i>Lispe consanguinea</i> Loew 1858
29	<i>Musca vitripennis</i> Meigen 1826	3;4	68	<i>Lispe kowarzi</i> Becker 1903
30	<i>Neomyia cornicina</i> (Fabricius 1781)	3;6	69	<i>Lispe loewi</i> Ringdahl 1922
31	<i>Neomyia lauta</i> (Wiedemann 1830)	3	70	<i>Lispe longicollis</i> Meigen 1826
32	<i>Pyrellia vivida</i> Rob.-Desv. 1830	3;6	71	<i>Lispe nana</i> Macquart 1835
33	<i>Stomoxys calcitrans</i> (Linnaeus 1758)	3;6;7;9	72	<i>Lispe pectinipes</i> Becker 1903
34	<i>Stygeromyia maculosa</i> Austen 1907	3	73	<i>Lispe persica</i> Becker 1904
	Subfamily Phaoniinae		74	<i>Lispe pygmaea</i> Fallén 1825
35	<i>Atherigona varia</i> (Meigen 1824)	3;6;15	75	<i>Lispe sericipalpis</i> Stein 1904 (= <i>Lispe quarens</i> Vill. 1936) ^[20]
36	<i>Helina banari</i> Zielke 2017	14		
37	<i>Helina evecta</i> (Harris 1780)	15	76	<i>Lispe rigida</i> Becker 1903
38	<i>Helina irani</i> spec. nov.	15	77	<i>Lispe tentaculata</i> (De Geer 1776)
39	<i>Helina karina</i> Pont 2012	10	78	<i>Lispocephala mikii</i> (Strobl 1893)
40	<i>Helina montana</i> (Rondani 1866)	3	79	<i>Pygophora immaculipennis</i> Frey 1917

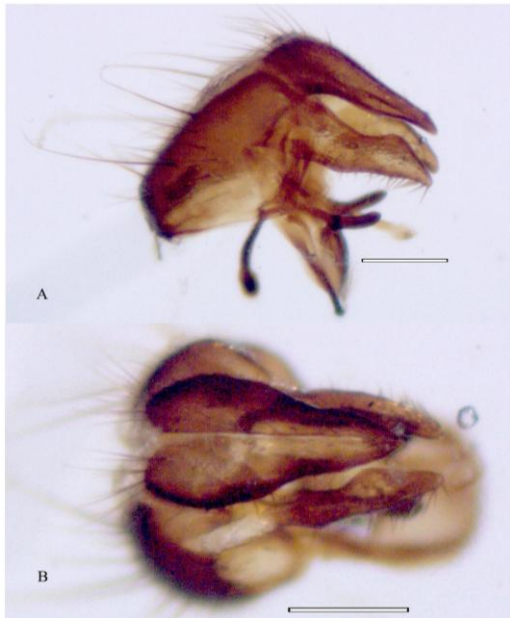


Fig 1: A) Terminalia and B) cercal plates of *Helina irani* spec. nov. (bar = 0.2 mm).

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