A new species of Medetera Fischer von Waldheim, 1819 (Diptera: Dolichopodidae) with a key to the species known from Iran

Новый вид Medetera Fischer von Waldheim, 1819 (Diptera: Dolichopodidae) с определителем видов из Ирана

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KEY WORDS: Medeterinae, Medetera, new species, Palaearctic Region, Iran, Markazi, West Azerbaijan.

КЛЮЧЕВЫЕ СЛОВА: Medeterinae, Medetera, новые виды, Палеарктика, Иран, Маркази, Западный Азербайджан.

ABSTRACT: A new long-legged fly species, Medetera neopavlovskii sp.n. from West Azerbaijan and Markazi provinces of Iran is described and illustrated. The new species appears to be very close to Iranian endemic M. pavlovskii Negrobov, 1972 in habitus, differing from the latter in a somewhat longer body; distal section of wing vein M₄ at least 3/4 as long as crossvein dm-m; postpedicel 1.5 times longer than high; hypopygium distinctly shorter than epandrium, with simple setae and one thick curved bristle at apex; epandrial setae nearly as long as cercus. Medetera palmaris Negrobov, 1972 is newly found in Iran and redescribed. It is the first finding of this species after the original description from two males collected from Tajikistan and a female collected from Kasakhstan. A check list and key to 22 Medetera species of Iran are compiled.

РЕЗЮМЕ: Новый вид мух-зеленушек, — коротоногий Medetera neopavlovskii sp.n. из иранских провинций Западный Азербайджан и Маркази описаны и проиллюстрированы. Новый вид оказался очень близким к иранскому эндемику M. pavlovskii Negrobov, 1972 по внешнему виду, отличаясь от последнего несколько более длинным телом; дистальная область жилки M₄, который не менее 3/4 длины поперечной жилки dm-m; третьим членником усика, длина которого в 1.5 раза больше высоты; сурдиль гипопигия заметно короче эпандрия, с прямым стернитом и одной толстой изогнутой щетинкой на вершине; щетинки эпандрия почти такой же длины, как и церки. Medetera palmaris Negrobov, 1972 впервые обнаружен в Иране и переописан. Это первая находка вида после первоначального описания двух самцов, собранных в Таджикистане, и самки, собранной в Казахстане. Составлен справочник список и определитель 22 видов Medetera, известных из Ирана.

Introduction

The genus Medetera Fischer von Waldheim, 1819 is one of the largest dolichopodid genera with about 365 species worldwide, including ca. 200 recognized species from the Palaearctic, 62 from the Orient and 34 species from the Afrotropical region [Grichanov, 2023]. The Palaearctic species of Medetera were recently reviewed [Negrobov, 2016]. Since then several new species were described from South-West of Europe, Slovakia and Palaearctic China [Tang et al., 2016; Maslova et al., 2018; Pollet et al., 2022] and one new species from Iran [Grichanov, 2017]. The Iranian fauna of the genus numbers now 22 species [Grichanov, 2023b; this paper]. This genus is poorly studied in Iran and new species records are anticipated here, whereas some previously reported European species will probably be excluded from its fauna.

Males of one new Medetera species were found in the collection of the Hayk Mirzayans Insect Museum (HMIM), Iranian Research Institute of Plant Protection (IRIPP), Tehran, Iran, and considered close to Iranian endemic M. pavlovskii Negrobov, 1972. Medetera palmaris Negrobov, 1972 is newly found in Iran. These two species are described, and a list and identification key to males of 22 species from Iran are provided.

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Material and methods

The paper is based on material found in the HMIM collection that will be deposited in HMIM and the Zoological Institute of the Russian Academy of Sciences (ZIN, St Petersburg, Russia). All specimens are mounted on pins.

Specimens have been studied and photographed with a ZEISS SteREO Discovery.V12 modular stereo microscope and an AxioCam MRC5 camera. The preparations of the male genitalia were photographed with a ZEISS Axiosstar stereo microscope and an AxioCam ICc3 camera. The measurement accuracy of these microscopes is 0.01 mm. Morphological terminology and abbreviations follow Cumming & Wood [2017] and Grichanov & Brooks [2017]. The lengths of the antennomeres and podomeres are given in millimetres. Body length is measured from the base of the scape to tip of the arista-like setae. Wing length is measured from the base to the wing apex. Antenna length is measured from the base of the scape to the tip of a aristae-like clavus. The figures showing the hypopygium in lateral view are oriented as it appears on the intact specimen, with the morphologically ventral surface of the genitalia facing upwards, dorsal surface downwards, anterior end facing right and posterior end facing left.

Taxonomy

Genus Medetera Fischer von Waldheim, 1819

Medetera Fischer von Waldheim, 1819: 7. Type species: Medetera carnivora Fischer von Waldheim, 1819 (=Medetera diadema (Linnaeus, 1767), monotypy. urn:lsid:zoobank.org:act: BD0A434E-EFA6-43B3-A9C3-1A10B381E8AE

REMARKS. See Bickel [1985, 1987] for redescription of the genus, Grichanov [2023] for synonymy, Pollet et al. [2022] for discussion. The following species are reported from Iran:

1. Medetera abstrusa Thunberg, 1819
   Distribution: Iran; West and Central Palaearctic boreal species.

2. Medetera anjudanica Grichanov et Ahmadi, 2017
   Distribution: Iran (Markazi, Mazandaran); West Palaearctic species.

3. Medetera belgica Parent, 1936
   Distribution: Belgium; Malmedy, Pouthones Cuves.

4. Medetera diaedena (Linnaeus, 1767)
   Distribution: Iran (Markazi, Mazandaran); West Palaearctic species.

5. Medetera feminina Negrobov, 1967
   Distribution: Russia: Voronezh, near Borisoglebsk. 

6. Medetera flavipes Meigen, 1824
   Distribution: Belgium, Czech Republic, Iran, Portugal, Russia (European part), Sweden.

7. Medetera freyi Thunberg, 1819
   Distribution: Iran (Gilan, Mazandaran); West Palaearctic species.

8. Medetera jucula (Fallén, 1823)
   Distribution: Belgium, Czech Republic, Portugal, Romania, Russia (Saint Petersburg), Sweden, the UK.

9. Medetera lamprostoma Loew, 1871
   Distribution: The species is known from Iran (Markazi, South Khorasan), Tajikistan, Turkmenistan and Uzbekistan.

10. Medetera media Parent, 1925
    Distribution: Iran; Scania, Sweden; the UK.

11. Medetera meridionalis Negrobov, 1967
    Distribution: Spain, Portugal.

12. Medetera mixta Negrobov, 1967
    Distribution: Iran (Markazi, Mazandaran); West and Central Palaearctic species.

13. Medetera palmaris Meigen, 1824
    Distribution: Iran (Markazi, Mazandaran); West Palaearctic species.

14. Medetera pallipes (Zetterstedt, 1843)
    Distribution: Iran (Markazi, Mazandaran); West Palaearctic species.
A new Medetera with a key to the species known from Iran

NOTES. This key builds extensively on Negrobov & Naglis [2016] but has scattered modifications based on material examined for the present study in our respective collections. The final decision on species identification needs the male genitalia examination.

1. Distal section of vein M\(_5\) 5–6 times as long as crossvein dm-m; basal section of M\(_5\) swollen along its almost entire length; 1.4–1.8 mm ........................................... 1
   1. Distal section of M\(_5\) at most 3–4 times as long as crossvein dm-m; basal section of M\(_5\) usually not swollen .......... 2
   2. Mid tibia without dorsal setae in basal third .......... 3

2. Mid tibia with a pair of anterodorsal and posterodorsal setae in basal third, sometimes with only one posterior dorsal seta .... 5
   3. Postocellar setae black; antenna dark with mostly white aristal-like styli; thoracic setae white; body 2.3 mm ..........
      .......................................................... 2. M. anjudanica
   4. Postocellar setae black; antenna entirely dark; thoracic setae mostly black ........................................... 4
   5. Tibiae usually yellow or brownish yellow; apical projection of aedeagus apicommisural tooth, without middorsal tooth; cercus with only two apical projections; apical projection of phallus with a small dorsobasal tooth; 1.9–2.2 mm ........................................... M. muralis
   6. Three or four pairs of strong dorsocentral setae of almost equal length; second pair of dorsocentral setae sometimes smaller than remaining dorsocentral; sometimes a small additional pair of dorsocentral setae anteriorly .............. 7
   7. Usually more than 3–4 pairs of dorsocentral setae decreasing in size anteriorly; anterior dorsocentral setae distinctly smaller than posterior dorsocentral .............................. 15
   8. Three pairs of dorsocentral setae of almost equal length; if 4 pairs of dorsocentral setae present, then second pair distinctly smaller than other pairs ......................................... 8
   9. Four pairs of dorsocentral setae of almost equal length..... ................................................................. 11
   10. Four pairs of dorsocentral setae, second pair distinctly smaller than other pairs ........................................ 9
   11. Three pairs of dorsocentral setae of almost equal length; 10
   12. Distal section of M\(_5\) longer than or equal to crossvein dm-m; epandrium not higher than length of tergite 5; 2.6–3.2 mm ............................................................................ M. truncorum
   13. Distal section of M\(_5\) distinctly shorter than crossvein dm-m; epandrium higher than length of tergite 5; 2.6–2.9 mm .............................. M. roghii
   14. Postpedicel 2 times longer than high; distal section of M\(_5\) half as long as crossvein dm-m; surstylus distinctly longer than epandrium (4/3), with simple setae at apex; 2.6 mm ................................................................ M. pavlovskii
   15. Postpedicel 1.5 times longer than high; distal section of M\(_5\) at least 3/4 as long as crossvein dm-m; surstylus distinctly shorter than epandrium (3/4), with simple setae and 1 thick curved bristle at apex; 3.1 mm . . . M. neopavlovskii sp.n.
   16. Tibiae and tarsi mainly yellow ................................ 12
   17. Tibiae and tarsi dark brown or black, knees sometimes yellow .............................................................. 14
   18. Fore coxa dark; tarsi dark from apex of basitarsus; clypeus scarcely shining, with weak pruinosity; epistome matt; ventral lobe of surstylus with two strong simple apical setae, dorsal lobe of surstylus without dorsosalpical seta; median seta of epandrial lobes spatulate; 2.6–3.7 mm ..........
      ........................................................................ M. flavipes
   19. Tibiae usually yellow or brownish yellow; apical projection of aedeagus with obnubile apex, without mid-dorsal tooth; cercus usually with only two apical projections; apical projection of phallus with a small dorsobasal tooth; 1.9–2.2 mm ........................................... M. belgica

Key to Medetera species from Iran (males)

Distribution: Tajikistan, Kazakhstan. New record from Iran (see below).

16. Medetera pavlovskii Negrobov, 1972
   Type locality: Iran: Shahrud.
   Distribution: The species is known from Iran (Semnan: Shahrud) and Egypt.

17. Medetera roghii Rampini et Canzoneri, 1979
   Type locality: Spain: Minorca.
   Distribution: The species is known from Iran (Lorestan), Italy (Sicilia), Malta, Morocco and Spain.

18. Medetera seguyi Parent, 1926
   Type locality: France: Rambouillet.
   Distribution: The species is known from Iran (Mazandaran), Belgium, Czech Republic, France, Norway and Switzerland (as Medetera seguyi); Russia (Adygea, Karachai-Cherkessia and Krasnodar; as subspecies M. seguyi spheroidea Negrobov, 1967).

19. Medetera spinigera (Stackelberg, 1937)
   Type locality: Uzbekistan: Yargak, near Chatchyrci, Kattakurgan district.
   Distribution: The species is known from Iran (Markazi) and Uzbekistan.

20. Medetera truncorum Meigen, 1824
   Type locality: Germany: Hamburg.
   Distribution: Iran (Alborz, Gilan, Lorestan, Mazandaran, Razavi Khorasan, Tehran). West and Central Palaeartic, Neartic Region.

21. Medetera veles Loew, 1861
   Type locality: the USA: Florida.
   Distribution: Iran (Tehran); Europe, some regions of European Russia and Siberia, Japan; Nearctic Region.

324
- One pair of dorsocentral setae in front of transverse suture; surstylus with two dorsoapical bristles situated more apically, with distance between them about half as long as the longest bristle; 3–4 mm ................................. M. meridionalis

15. Basal section of M4 with distinct swelling; 1.9–2.1 mm ................................. M. freyi

- Basal section of M4 without swelling ................................................. 16

16. Distal section of M4 more than 1.5 times as long as crossvein dm-m ................................. 17

- Distal section of M4 at most 1.5 times as long as crossvein dm-m .................. 21

17. Basal antennal segments yellow; 2.2–2.3 mm ................................. M. palmaris

- Basal antennal segments black ...................................................... 18

18. At least tibiae yellow; 1.8–2.2 mm ................................. M. pallipes

- Legs including tibiae dark brown or black .................................... 19

19. Postocular setae brown or black; 2.4–2.8 mm ............................. M. abstrusa

- Postocular setae yellow or white; 2.2 mm .................................. M. segoyo

20. Propleural setae unequal in length; 2.6–3.7 mm .............................. M. feminina

- Propleural setae strong, almost equal in length .................. 21

21. At least tibiae yellow; clypeus metallic shining, without pruinosity; 3.7–4.5 mm ................................. M. diaedana

- Legs black, only knees sometimes yellow; clypeus with pruinosity at least laterally; 2.0–2.7 mm ................................. M. veles

**Medetera neopavlovskii sp.n.**

**Figs 1–10**

**MATERIAL.** Holotype ♂, Iran, West Azerbaijan Prov., Rashan Research Station for Lake Urmia National Park, 1315 m, 37°20′38″N, 045°17′37″E, 18–25.VI.2015, Malaise trap, M. Parchami-Araghi leg. (ZIN; male terminalia dissected and stored in glycerin in a microvial pinned with the specimen).

Paratypes: 2♂, same data as for holotype (HMIM); 1♂, Iran, Markazi Prov., Arak, Haftad Qolleh Protected Area, Cheshmeh valley, 2219 m, 34°07′05″N, 50°16′25″E, 20.V–15.VI.2016, Malaise trap, E. Giliasan, M. Parchami-Araghi leg. (ZIN; male terminalia dissected and stored in glycerin in a microvial pinned with the specimen).

**DESCRIPTION. Male.** (Fig. 1). Length (mm); body 3.1, wing 3.0/1.1, antenna 1.1. *Head* (Fig. 2). Frons bluish black, with grey pruinosity; occipital, vertical and postvertical bristles black; postocular setae white; face slightly narrowing towards clypeus, under antenna 1.4 times as wide as at clypeus, with grey pruinosity, metallic violet in middle of lower part; narrowest distance between eyes 2 times as long as distance between occipital setae; clypeus metallic violet, with grey pruinosity along eyes; palpus black, with white hairs; proboscidial black; antenna brown-black (Fig. 3); postpedicel conoid, 1.5 times as long as high; aristula-like stylus apical, bare; length (mm) of scape to pedicel to postpedicel to stylus (segments 1 and 2), 0.05/0.05/0.11/0.03/0.89. *Thorax* bluish black, with grey pruinosity, with mainly black bristles and white hairs; 3 pairs of strong dorsocentral bristles slightly decreasing in length anteriorly, with anterior pair at level of sutural bristles; acrostichal setae biserial, microscopic, white; propisternum with 1 long and 1 short white setae on its lower portion; 1 long and 1 short notopleural bristles; 1 long and 1 short supraalar bristles; scutellum with 2 pairs of strong bristles, with lateral bristles more than half as long as mediadors. Legs including coxae black; knees yellow; coxae, femora and tibiae with white hairs and setae; tarsomeres with black apical setae; fore and mid coxae with anterior and apical setae; hind coxa with strong lateral seta; fore and mid femora with short hairs; hind femur (Fig. 4) with strong dorsal setae in basal half, nearly as long as femur height, with rather short ventral setae in basal half; tibia and tarsomeres devoid of strong bristles; mid tibia with pair of antero- and posterdorsal short setae at basal 1/4; hind tibia (Fig. 5) with short dorsal preapical setae, with white spine and minute comb of black setae dorsocapiously; tarsomeres with simple setae; fore podomere length (from femur to tarsomere, 5 mm): 0.64/0.59/0.28/0.15/0.11/0.06/0.09; mid leg: 0.71/0.72/0.54/0.19/0.13/0.07/0.08; hind leg: 0.69/0.89/0.25/0.33/0.17/0.09/0.09. *Wing* hyaline, veins yellow-brown; basal section of M4 as long as distal section; ratio of part of costa between R1 and R4 to this between R4 and M1, 0.24/0.19–0.26/0.34; lower calypter yellow, with white setae; halter yellow. *Abdomen* bluish black, with grey pollinosity, with short white setae; tergum 7 well developed, with short setae; hypopygium (Fig. 6) black, narrow, elongate-triangular, with brownish yellow appendages; hypandrium (ventral view) very long and narrow, thickened at extreme base (Fig. 8); phallus filiform, bifurcated at extreme apex; epandrial lobes fused, with 2 long and simple setae, about as long as cercus (Fig. 7); surstylus (Fig. 9) long and narrow, distinctly shorter than epandrium, with simple setae and 1 thick curved bristle at apex; dorsal and ventral arms of surstylus fused almost to apex (Fig. 10); cercus (Fig. 8) long and narrow, covered with hairs and setae, bifurcated at apex, with dorsal process bearing long apical bristle, with ventral process bearing minute setae.

**Female.** Unknown.

**ETYMOLOGY.** The species epithet reflects its morphological similarity with *Medetera pavlovskii*.

**DISTRIBUTION.** Iran (Markazi, West Azerbaijan).

**DIAGNOSIS.** *Medetera neopavlovskii* sp.n. is very close to *M. pavlovskii* Negrovob in habitus, differing from the latter in a somewhat longer body; distal section of M4 at least 3/4 as long as crossvein dm-m; postpedicel 1.5 times longer than high; surstylus distinctly shorter than epandrium, with simple setae and 1 thick curved bristle at apex; epandrial setae nearly as long as cercus. *M. pavlovskii* has distal section of M4 half as long as crossvein dm-m; postpedicel 2 times longer than high; surstylus distinctly longer than epandrium, with only simple setae at apex; epandrial setae about half as long as cercus [Negrovob, Stackelberg, 1974]. *Medetera pavlovskii* was described from Shahrud (Semnan province of Iran) and was once reported from Sinai Mountains, Egypt [Grichanov, 2007a]. The latter record must be confirmed.

In addition, *M. pavlovskii* with three dorsocentrals on mesonotum and *M. tuberculata* Negrovob, 1966 with four dorsocentrals on mesonotum were incorrectly included into the identification key by Negrovob & Naglis [2016]. The couplet 51 of this key must be written and supplemented as follows: 51. Proepisternal seta and hair black; acrostichal setae uniserial; lower calypter with black cilia; distal section of M4 1.6 times longer than dm-m; 1.6 mm (Slovakia) ...................... ................................. M. longisurstylata Maslova et al., 2018

- Proepisternal seta and hair white; acrostichal setae biserial; lower calypter with white cilia; distal section of M4 not longer than dm-m ................................. 51a

51a. Face partly shining; scutellum with lateral setae more than half as long as medians ................................. 51b

51b. Postpedicel 2 times longer than high; distal section of M4 half as long as crossvein dm-m; surstylus distinctly longer than epandrium (4/3), with simple setae at apex; 2.6 mm . ................................. M. pavlovskii

**I.Ya. Grichanov, E. Giliasan**

325
A new Medetera with a key to the species known from Iran

Figs 1–10. Medetera neopavlovskii sp.n., male: 1 — habitus; 2 — head; 3 — antenna; 4 — hind femur; 5 — apex of hind tibia and basitarsus; 6 — hypopygium, lateral view; 7 — epandrial setae; 8 — hypandrium and cercus, lateral view; 9 — surstylus, lateral view; 10 — surstylus, dorsal view.

Рис. 1–10. Medetera neopavlovskii sp.n., самец: 1 — внешний вид; 2 — голова; 3 — усик; 4 — заднее бедро; 5 — вершина задней голени и 1-й членик задней лапки; 6 — гипопигий, вид сбоку; 7 — щетинки эпандрия; 8 — гипандрий и церка, вид сбоку; 9 — сурстиль, вид сбоку; 10 — сурстиль, вид сверху.
Postpedicel 1.5 times longer than high; distal section of M₁ at least 3/4 as long as crossvein dm-m; surstylus distinctly shorter than epandrium (3/4), with simple setae and 1 thick curved bristle at apex; 3.1 mm .... *M. neopavlovskii* sp.n.

Medetera palmaris Negrobov, 1972

Figs 11–14.


Material. 1♂, Iran, Markazi Prov., Arak, Haftad Qolleh Protected Area, Chekab valley, 2219 m, 34°07'05"N, 050°16'25"E, 20.V–15.VI.2016, Malaise trap, E. Gilasian, M. Parchami-Araghi leg. (ZIN; male terminalia dissected and stored in glycerin in microvial pinned with the specimen); 6♂ (in ethanol), same data (HMIM, ZIN).

DESCRIPTION. Male (Fig. 11). Length (mm): body 2.2–2.3, wing 2.3/0.9, antenna 0.8. Head (Fig. 13). Frons bluish black, with whitish grey pruinosity; ocellar, vertical and postvertical bristles light brown; postocular setae white; face nearly parallel-sided, metallic greenish violet, with grey pruinosity along eyes and clypeus; narrowest distance between eyes 1.7 times as long as distance between ocellar setae; clypeus metallic violet, with grey pruinosity laterally; palpus black, with white hairs; proboscis black; antenna (Fig. 12) with scape and pedicel dirty yellow, postpedicel grey-brown, arista-like stylus black; postpedicel rounded, about as long as high; arista-like stylus dorso-apical, with microscopic hairs; length (mm) of scape to pedicel to postpedicel to stylus (segments 1 and 2), 0.05/0.05/0.07/0.02/0.59. Thorax greenish blue-black, with whitish grey pruinosity, with dirty white bristles and white setae; 5 pairs of dorsocentral setae strongly decreasing in length anteriorly, with posterior pair long and strong; acrostichal setae distinct, consisting of 6–7 pairs; proepisternum with 1 long and 1 short setae on its lower portion; 1 long and 1 short notopleural setae; 1 long and 1 short supra-alar setae; scutellum with 2 pairs of strong setae, with lateral setae nearly half as long as median. Legs mainly yellow; fore coxa brown in basal half; mid and hind coxae black; fore femur brownish in basal half; mid femur brown in basal 2/3; hind femur blackish brown except apex; tarsi with brown-black segments 4 and 5; coxae, femora and tibiae with white hairs and setae; tarsomers with black apical setulae; fore and mid coxae with anterior and apical setae; hind coxa with strong lateral seta; fore and mid femora with short hairs; hind femur (Fig. 14) with strong dorsal setae in basal half, with 4 anteroventral setae at apex; tibia and tarsomers devoid of strong bristles; mid tibia with pair of antero- and postero-optional setae at basal 1/4; hind tibia with short dorsal preapical setae; tarsomers with simple setulae; fore podomere length (from femur to tarsomere 5, mm): 0.64/0.59/0.28/0.15/0.11/0.06/0.09, mid leg: 0.71/0.72/0.34/0.19/0.13/0.07/0.08, hind leg: 0.69/0.89/0.23/0.33/0.17/0.09/0.09. Wing hyaline, veins yellow-brown; basal section of M₁+2 distinctly shorter than distal section (0.65/1.06); ratio of part of costa between R₂+3 and R₄+₅ to this between R₄+₅ and M₁+2, 0.28/0.08; ratio of cross-vein dm-m to distal part of M₁ to maximal distance between R₄+₅ and M₁+2, 0.19/0.35/0.22; lower calypter yellow, with white setae; halter yellow. Abdomen greenish blue-black, with grey pollinosity, with short white setae; sternite 7 well developed; hypopygium [Negrobov, Stackelberg, 1974: fig. 731] black, narrow, elon-
A new Medetera with a key to the species known from Iran

Gate-triangular, with brownish yellow appendages; hypandrium (ventral view) relatively narrow and mostly parallel sided, with strong subapical constriction, forming apical round head with minute projection at apex [ibid: fig. 730]; phallus simple, pointed at apex; epandrial lobes rather short, distinctly separated, each bearing equally long and simple setae; short epandrial seta present between epandrial lobes and base of hypandrium; surstylus [ibid: fig. 732] long and narrow; dorsal and ventral arms of surstylus fused almost to apex; dorsal surstylar arm slender, with two dorsal setae; ventral surstylar arm with 2 simple apical setae, 1 leaflike subapical seta, 1 thick dentate seta at junction with dorsal surstylar arm; cercus with subtriangular base, narrow distally, ending with long slender pointed process, bearing flattened subapical ventral seta, equal in length to apical process; other cercal setae simple.

DISTRIBUTION. Iran (Markazi), Tajikistan, Kazakhstan (female).

DIAGNOSIS AND NOTES. Medetera palmaris was rather briefly described and never recorded again after description [Negrobov, Stackelberg, 1974]. This species keys to M. flavichaeta Naglis, 2013 from Kars province of Turkey [Negrobov, Naglis, 2013], strongly differing from the latter in shape of surstylus and hypandrium [Negrobov, Stackelberg, 1974: figs 730–732; Naglis, 2013: fig. 2]. It is worth noting that the hind tarsomere 2 was incorrectly measured as 1.8 times longer than tarsomere 1 in the description [Negrobov, Stackelberg, 1974: 326] and correctly described as “not more than 1.5 times longer than tarsomere 1” in both keys [Negrobov, Stackelberg, 1972: 277; Negrobov, Naglis, 2016: 356]. Wing vein M 4 and dm-m length ratio was most probably also incorrectly given in the original description of M. palmaris (2.4 vs. 1.8).

Conclusion

As a result of this study, the Medetera species number in Iran has increased to 22: ten species have been reported from Markazi, six from Mazandaran, four from Tehran, Gilan and Lorestan each, three from Alborz, two from Fars and West Azerbaijan each, as well as from East Azerbaijan, Esfahan, Razavi Khorasan, Semnan and South Khorasan with one species in each province. Four species were reported without precise localities [Kazerani et al., 2016]. In comparison, the Turkish fauna numbers 18 species [Tonguç et al., 2016; Tonguç, Yüzer, 2023]. The fauna of the Caucasus and East Mediterranean region as a whole includes about 60 species of the genus [Grichanov, 2007b; Negrobov, Naglis, 2016]. It means that new species records are anticipated in Iran.
Medetera neopavlovskii s.p.n. types along with M. meridionalis adults were collected in the Lake Urmi National Park (West Azerbaijan province) and the Haftad Qollieh Protected Area (Markazi province). See Asem et al. [2014] and Ansari & Golabi [2019] for descriptions of these nature reserves. See also photographs of type localities in Grichanov & Gilasian [2023b].

Medetera palmaries specimens were collected in the Haftad Qollieh Protected Area (Fig. 3), together with M. neopavlovskii s.p.n., M. anjutanica and more common M. meridionalis and M. mixta (see Grichanov, Gilasian [2023b]).

In total, 179 species belonging to 31 genera of the family Dolichopodidae are recorded now from Iran [Grichanov, Gilasian, 2023a, b, c, d].

Competing interests. The authors declare no competing interests.

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