

## New records of Dolichopodidae (Diptera) from Central Provinces of Iran

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### Abstract

317 specimens of Dolichopodidae were collected and 19 species were identified to species or genus level. Three dolichopodid species [*Medetera jacula* (Fallén, 1823), *Rhaphium albifrons* Zetterstedt, 1843 and *Thrypticus bellus* Loew, 1869] are recorded for the first time from Iran. The new distribution of 11 genera and 16 species in the Markazi and Lorestan Provinces are presented.

**Keywords:** *Dolichopodidae*, Iran, Markazi, Lorestan, new records.

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### Introduction

Markazi province is located at the eastern junction point of Alborz and Zagros Mountains with an altitudinal range of 1000-2500 m. Various field crops and fruit orchards, as well as large scale nurseries of ornamental plants, are located in this area, bordering plains and high mountains covered with natural vegetation (Rakhshani *et al.*, 2008). The Lorestan province chiefly consists of mountains, with numerous ranges, part of the Zagros chain, running northwest to southeast. As it lies on the westernmost slopes of the Zagros Mountains, annual precipitation in Lorestan is among the highest within Iran, south of the Alborz Mountains (Ghahari *et al.*, 2012).

Information available about Dolichopodidae of the Central Iranian provinces is limited. Grichanov *et al.* (2010) is the only reference from the Markazi province. The authors found 8 species in the province in addition to several unidentified females. None of these species were reported from the Lorestan province. The present research contributed new records from the Central Iran, including *Medetera jacula* (Fallén, 1823), *Rhaphium albifrons* Zetterstedt, 1843 and

*Thrypticus bellus* Loew, 1869 found for the first time in Iran (see Khaghaninia *et al.*, 2013; Gharajedaghi *et al.*, 2014; Kazerani *et al.*, 2014a-e, 2015).

### Materials and Methods

The material was sampled from 64 sites in the Markazi and Lorestan provinces by standard sweep net during 2014-2015. All the identified species were checked by the Dr. Igor Ya. Grichanov. Sampling data include: Location, Coordinates (DM), Altitude (m amsl), dominant plant community and sample number. The specimens are preserved in ethyl alcohol and deposited in Shiraz Branch, Islamic Azad University, Shiraz, Iran.

### Results

317 specimens of Dolichopodidae were collected, and 19 species were identified to species or genus level. The new distribution of 11 genera and 16 species in the Markazi and Lorestan Provinces are presented. Three dolichopodid species (*Medetera jacula* (Fallén, 1823), *Rhaphium albifrons* Zetterstedt, 1843 and *Thrypticus bellus* Loew, 1869) are recorded for the first time in Iran.

**Argyra Macquart, 1834**

*Argyra leucocephala* (Meigen, 1824)

**Material:** Lorestan province: Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22 E, 2049 m, on *Poa balbosa* under *Salix* sp. (Trees), 1♂ (Leg. A. Ahmadi).

**Reference:** Grichanov *et al.*, 2010.

**Campsicnemus Haliday, 1851**

*Campsicnemus* sp.

**Material:** Lorestan province: Ab Sefid water fall, 22-Sep-15, 32°59.80' N, 49°35.17 E, 2127 m, on Graminae under *Juglans regia* (Trees), 1♀ (Leg. A. Ahmadi).

*Campsicnemus umbripennis* Loew, 1856

**Material:** Markazi province: Haji Abad, 13-Apr-15, 34°04.16' N, 49°49.21 E, 1700 m, on *Medicago sativa*, 1♂ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2014a.

**Chrysotus Meigen, 1824**

*Chrysotus angulicornis* Kowarz, 1874

**Material:** Markazi province: Khondab, 19-May-15, 34°23.30' N, 55°11.05 E, 1700 m, on *Medicago sativa*, 5♂14♀ (Leg. A. Ahmadi).

**Reference:** Grichanov *et al.*, 2010; Kazerani *et al.*, 2014b.

*Chrysotus suavis* Loew, 1857

**Material:** Markazi province: Mahdi Abad, 10-Jul-15, 34°02.56' N, 55°20.53 E, 1900 m, Wheat farm (*Triticum aestivum*), 1♂1♀; Khondab, 19-May-15, 34°23.30' N, 55°11.05 E, 1700 m, on *Medicago sativa*, 4♂3♀; Shabsavaran, 27-Apr-15, 34°10.26' N, 56°01.19 E, 1700 m, on *Medicago sativa*, 1♀ (Leg. A. Ahmadi).

**Reference:** Grichanov *et al.*, 2010; Kazerani *et al.*, 2014b.

**Dolichopus Latreille, 1796**

*Dolichopus excisus* Loew, 1859

**Material:** Markazi province: Hak Sofla, 28-Aug-15, 33°59.58' N, 55°22.06 E, 1900 m, *Typha* sp., 1♂2♀; Hendoogar, 13-Sep-15, 33°46.61' N, 49°14.45 E, 2070 m, on *Chenopodium* sp., 1♂ (Leg. A. Ahmadi).

**Reference:** Grichanov *et al.*, 2010.

*Dolichopus griseipennis* Stannius, 1831

**Material:** Markazi province: Hak Sofla, 28-Aug-15, 33°59.58' N, 55°22.06 E, 1900 m, *Typha* sp., 1♀ (Leg. A. Ahmadi).

**Reference:** Grichanov *et al.*, 2010; Kazerani *et al.*, 2013a; Gharajedaghi *et al.*, 2014.

*Dolichopus signifer* Haliday, 1832

**Material:** Markazi province: Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on *Juncus* sp. and *Salix* sp. (Trees); Sarsakhti Olya, 28-Aug-15, 33°49.00' N, 49°21.90 E, 2120 m, *Mentha* sp. and *Equistum* sp. under *Populus* sp. (Trees), 1♂1♀; Gavgodar, 10-Sep-15, 34°06.45' N, 49°21.80 E, 1826 m, on *Typha* sp., *Salvia* sp., *Medicago sativa* and *Salix* sp., 1♂2♀; Baneh, 12-Sep-15, 34°04.41' N, 49°21.80 E, 2021 m, on *Rumex* sp. under *Juglans regia* (Trees), 5♂5♀; Baneh, 12-Sep-15, 34°04.41' N, 49°21.80 E, 2021 m, on *Lolium* sp. under *Juglans regia* (Trees), 1♂2♀; Baneh, 12-Sep-15, 34°04.41' N, 49°21.80 E, 2021 m, on *Amaranthus* sp., *Plantago* sp. and *Sinapis arvensis*, 9♂8♀; Sarsakhti Olya, 13-Sep-15, 34°49.99' N, 49°21.46 E, 2117 m, on *Salvia* sp. under *Populus* sp. (Trees), 1♀; Hendoogar, 13-Sep-15, 33°46.61' N, 49°14.45 E, 2070 m, on *Chenopodium* sp., 1♂; Galehchi Olya, 28-Sep-15, 33°57.53' N, 49°07.46 E, 2153 m, on *Medicago sativa*, 1♀ (Leg. A. Ahmadi); Lorestan province: Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22 E, 2049 m, on *Poa balbosa* under *Salix* sp. (Trees), 1♂2♀.

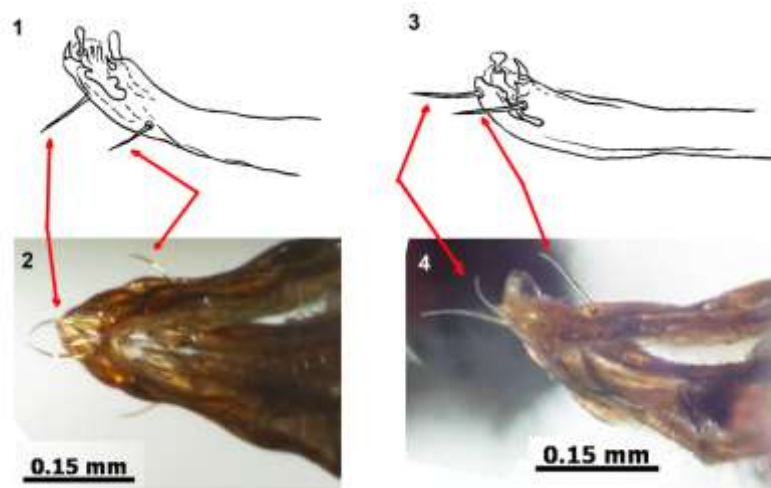
**Reference:** Grichanov *et al.*, 2010; Khaghaninia *et al.*, 2013; Kazerani *et al.*, 2013a.

**Medetera Fischer von Waldheim, 1819**

*Medetera jacula* (Fallén, 1823)

(Plate 1. Figs. 1-4)

**Material:** Markazi province: Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on *Juncus* sp. and *Salix* sp. (Trees), 1♂; Sefid Shaban, 27-Jul-15, 34°37.51' N, 49°56.75 E, 2317 m, 6♂8♀; Nakhjirvan, 28-Jul-15, 33°56.12' N, 50°36.44 E, 1519 m, on *Typha* sp., 1♂1♀; Mahallat, 28-Jul-15, 33°53.63' N, 50°32.23 E, 1541 m, on *Typha* sp. and *Polygonum* sp., 1♂; Sarsakhti Olya, 28-Aug-15, 33°49.00' N, 49°21.90 E, 2120 m, Under *Salix* sp. and *Populus* sp. (Trees), 1♂1♀; Baneh, 12-Sep-15, 34°04.41' N, 49°21.80 E, 2021 m, on *Rumex* sp. under *Juglans regia* (Trees), 1♀; Baneh, 12-Sep-15, 34°04.41' N, 49°21.80 E, 2021 m, on *Amaranthus* sp., *Plantago* sp. and *Sinapis arvensis*, 1♂; Ghaghan, 22-Sep-15, 33°48.88' N, 49°29.88 E, 2070 m, on *Juncus* sp., 1♂; Arjenavand, 25-Sep-15, 34°20.80' N, 49°20.43 E, 2056m, on *Phragmites australis* and *Vitis vinifera*, 1♀ (Leg. A. Ahmadi); Lorestan province: Khak Patieh, 22-Sep-15, 33°07.83'



**Plate 1. Figures 1 & 2** *Medetera jacula* (Fallén, 1823); **3 & 4.** *Medetera meridionalis* Negrobov, 1967. 1 & 3. Lateral view: male surstyli, distal part (after Negrobov, 2010); 2. Dorsal view; 4. Dorsolateral view.

N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 1♂4♀, 22-Sep-15, 33°05.86' N, 49°39.62 E, 2121 m, on *Mentha* sp. and *Alhaji* sp., 1♀.

**Remarks:** *Medetera jacula* and *M. meridionalis* Negrobov, 1967 are abundant sister species in Iran, hardly differing from each other by habitual characters. Grichanov and Ovsyannikova (2015) proposed recently reliable and stable diagnostic character to distinguish males of the two forms, based on the position of two strong dorsolateral bristles on the apex of hypopygial surstylus. The *M. jacula* males have rather long distance between the two bristles, about as long as the longest bristle. *M. meridionalis* males bear the two bristles more apically on surstylus, having distance between them about half as long as the longest bristle. This feature is more appropriate than other diagnostic characters of the two species listed and figured by Negrobov (2010) to distinguish them, such as the wing venation, the number of dorsocentral bristles on mesonotum and the shape of fine microscopic setae on the apex of surstyli. New record from Iran.

#### **Poecilobothrus Mik, 1878**

*Poecilobothrus principalis* (Loew, 1861)

**Material:** Markazi province: Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on *Juncus* sp. and *Salix* sp. (Trees), 1♀ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2014d.

#### **Rhaphium Meigen, 1803**

*Rhaphium* sp.

**Material:** Markazi province: Hendoodar, 13-Sep-15, 33°46.61' N, 49°14.45 E, 2070 m, on *Juncus* sp., 3♀; Lorestan province: Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 1♀ (Leg. A. Ahmadi).

*Rhaphium albifrons* Zetterstedt, 1843

(Plate 2. Figs. 1-3)

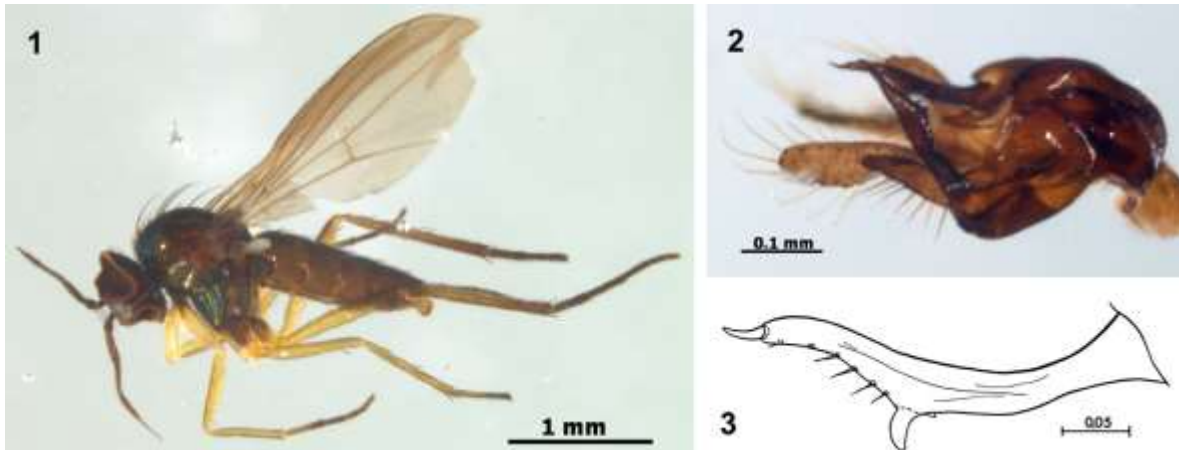
**Material:** Markazi province: Kouhin, 27-Jul-15, 34°37.51' N, 49°56.75 E, 2053 m, on *Juncus* sp. and *Mentha* sp. under *Salix* sp. and *Juglans regia* (Trees), 1♂ (Leg. A. Ahmadi).

**Diagnosis:** *Rh. albifrons* can be reliably distinguished from the closest species by male genital structures only. It has hypopygial surstylus narrow, nearly reaching apex of longer cercal lobe, with small inner projection (see Negrobov *et al.*, 2013: Fig. 16). New record from Iran.

*Rhaphium appendiculatum* Zetterstedt, 1849

**Material:** Markazi province: Gavgodar, 31-Aug-15, 34°06.45' N, 49°21.80 E, 1826 m, on *Typha* sp., *Salvia* sp., *Juncus* sp. and *Salix* sp., 1♂; Lorestan province: Ghaghan, 22-Sep-15, 33°48.88' N, 49°29.88 E, 2070 m, on *Juncus* sp., 1♂, 22-Sep-15, 33°35.18' N, 49°29.87 E, 2034 m, on *Juncus* sp. and *Mentha* sp., 1♀; Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 2♂ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2013b.



**Plate 2. Figures 1-3.** *Rhapsium albifrons* Zetterstedt, 1843: 1. Male habitus; 2. Hypopygium, lateral view; 3. Male surstylus, lateral view (after Negrobov *et al.*, 2013).

**Sympycnus Loew, 1857**

*Sympycnus pulicarius* (Fallén, 1823)

**Material:** Markazi province: Galehchi Olya, 28-Sep-15, 33°57.53' N, 49°07.46 E, 2153 m, on *Medicago sativa*, 1♂ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2014a.

**Syntormon Loew, 1857**

*Syntormon aulicus* (Meigen, 1824)

**Material:** Lorestan province: Joushan, 22-Sep-15, 33°21.43' N, 49°44.39 E, 2040 m, on *Typha* sp. and *Chenopodium* sp., 1♀ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2014c.

*Syntormon denticulatus* (Zetterstedt, 1843)

**Material:** Markazi province: Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on *Juncus* sp. and *Salix* sp. (Trees), 1♀; Nakhjirvan, 28-Jul-15, 33°56.12' N, 50°36.44 E, 1519 m, on *Typha* sp., 1♂; Gavgodar, 31-Aug-15, 34°06.45' N, 49°21.80 E, 1826 m, on *Typha* sp. and *Salix* sp. (Trees), 2♂1♀; Gavgodar, 31-Aug-15, 34°06.45' N, 49°21.80 E, 1826 m, on *Typha* sp., *Salvia* sp., *Juncus* sp. and *Salix* sp., 2♀; Ghaghan, 22-Sep-15, 33°48.88' N, 49°29.88 E, 2070 m, on *Juncus* sp., 2♀; Lorestan province: Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22 E, 2049 m, on *Poa bulbosa* under *Salix* sp. (Trees), 1♂1♀, 22-Sep-15, 33°09.75' N, 49°40.73 E, 2024 m, on *Typha* sp. and *Juncus* sp., 1♀; Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 7♂2♀; Ab Sefid waterfall, 22-Sep-15, 32°59.80' N, 49°35.17 E, 2127 m, on Graminae under *Juglans regia* (Trees), 1♂ (Leg. A. Ahmadi).

**Reference:** Kazerani *et al.*, 2014c.

*Syntormon pallipes* (Fabricius, 1794)

**Material:** Markazi province: Hosein Abad, 10-Jul-15, 34°02.20' N, 49°46.56 E, 1877 m, on *Juncus* sp. under *Juglans regia* (Trees), 4♂1♀; Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on *Juncus* sp. and *Salix* sp. (Trees), 1♂; Hosein Abad, 09-Sep-15, 34°02.20' N, 49°46.56 E, 1877 m, on *Juncus* sp. under *Fraxinus* sp. (Trees), 1♂1♀; Galehchi Olya, 28-Sep-15, 33°57.24' N, 49°07.47 E, 2174 m, on Poaceae under *Juglans regia* (Trees), 2♂ (Leg. A. Ahmadi); Lorestan province: Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22 E, 2049 m, on *Poa bulbosa* under *Salix* sp. (Trees), 40♂39♀; Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22 E, 2049 m, on *Poa bulbosa* under *Salix* sp. (Trees), 1♀; Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 3♂2♀.

**Reference:** Negrobov and Matile, 1974; Grichanov *et al.*, 2010; Gharajedaghi *et al.*, 2014; Kazerani *et al.*, 2014c.

**Teuchophorus Loew, 1857**

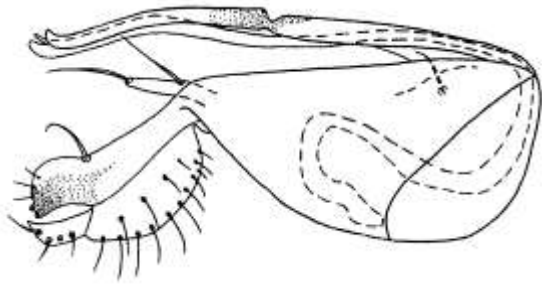
*Teuchophorus* sp.

**Material:** Markazi province: Gavgodar, 10-Sep-15, 34°06.45' N, 49°21.80 E, 1826 m, on *Typha* sp., *Salvia* sp., *Medicago sativa* and *Salix* sp., 1♀ (Leg. A. Ahmadi).

**Thrypticus Gerstaecker, 1864**

*Thrypticus bellus* Loew, 1869 (Plate 3)

**Material:** Markazi province: Hosein Abad, 10-Jul-15, 34°01.49' N, 49°46.27 E, 1886 m, on *Juncus* sp. under *Juglans regia* (Trees), 8♂8♀; Hosein Abad, 10-Jul-15, 34°02.20' N, 49°46.56 E, 1877 m, on *Juncus* sp. under



**Plate 3.** *Thrypticus bellus* Loew, 1869, hypopygium, lateral view (after Grichanov *et al.*, 2011).

*Juglans regia* (Trees), 4♂9♀; Tafresh, 27-Jul-15, 34°40.15' N, 49°58.96' E, 2102m, on *Typha* sp., 1♂; Gavgodar, 31-Aug-15, 34°06.45' N, 49°21.80' E, 1826m, on *Typha* sp., *Salvia* sp., *Juncus* sp. and *Salix* sp., 1♂1♀; Hosein Abad, 09-Sep-15, 34°02.20' N, 49°46.56' E, 1877m, on *Juncus* sp. under *Fraxinus* sp. (Trees), 11♂14♀; Arjenavand, 25-Sep-15, 34°20.80' N, 49°20.43' E, 2056m, on *Phragmites australis* and *Vitis vinifera*, 2♂2♀; Gole Zard, 28-Sep-15, 33°57.51' N, 49°09.32' E, 1985m, on *Chenopodium* sp. and *Juncus* sp., 1♀; Gole Zard, 28-Sep-15, 33°57.51' N, 49°09.32' E, 1985m, on *Juncus* sp., 1♂5♀ (Leg. A. Ahmadi); Lorestan province: Deh Nasir, 22-Sep-15, 34°25.03' N, 49°38.67' E, 1992m, on *Phragmites australis* under *Elaeagnus* sp. (Trees), 3♂4♀.

**Remarks:** Negrobov (1991) included Iran in the area of species *Thrypticus intercedens* Negrobov, 1967 without indicating original material. Here we add the second species of the genus to the Iranian fauna, well differing from the former in male genital structures, especially in thin simple phallus. New record from Iran.

### Discussion

The identified species of the family Dolichopodidae were sampled from an altitude 1519 – 2317 m. Most of the collected species are widespread across the Palearctic Region. According to sampling data, the species *S. pallipes* and *T. bellus* respectively have the highest sample number. The species *M. jacula*, *S. denticulatus*, *S. pallipes* respectively, have the highest total distribution along whole sampling sites at the study area. According to Kazerani *et al.* (2014e), the Iranian fauna of Dolichopodidae includes 104 species known mainly from northern and

north-western Iran. Later, four species of the genus *Sciapus* Zeller, 1842, collected from forests of northern Iran (Mazandran and Guilan provinces) have been added to the country list (Kazerani *et al.*, 2015). Three dolichopodid species are recorded for the first time from Iran in our paper. The Central Iranian dolichopodid fauna, however, remains poorly studied.

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