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**New records of Dolichopodidae (Dip., Empidoidea) from Central Provinces of Iran**Azam Ahmadi<sup>1</sup>, Mehdi Gheibi<sup>1\*</sup>, Hadi Ostovan<sup>1</sup>, Shahram Hesami<sup>1</sup>, Igor Ya. Grichanov<sup>2</sup><sup>1</sup>Department of Entomology, Faculty of Agricultural Sciences, Shiraz Branch, Islamic Azad University, Shiraz, Iran<sup>2</sup> All-Russian Institute of Plant Protection, Podbelskogo 3, 196608, St.Petersburg-Pushkin, Russia\* Corresponding author, E-mail: [gheybi@iaushiraz.ac.ir](mailto:gheybi@iaushiraz.ac.ir)**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. New distribution of 11 genera and 16 species in the Markazi and Lorestan Provinces are presented. Seven identified species are found in the Lorestan Province for the first time.

Key words: Dolichopodidae, Iran, Markazi, Lorestan, new records.

**Introduction**

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

Available information about Dolichopodidae of the Central Iranian provinces is limited. Grichanov et al. (2010) is the only paper with data on long-legged flies from the Markazi province. The authors found 8 species in the province in addition to several unidentified females of other species. None species was reported from the Lorestan province. Several

researches gives new records from the Iran (see Khaghaninia et al. 2013, Gharajedaghi et al. 2014; Kazerani et al. 2014a-e, 2015).

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## Material and Methods

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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 deposited in ethyl alcohol in Shiraz Branch, Islamic Azad University, Shiraz, Iran.

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## Results

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317 specimens of Dolichopodidae were collected, and 19 species were identified to species or genus level. 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. Seven identified species are found in the Lorestan Province for the first time.

16

*Argyra Macquart*, 1834

17

*Argyra leucocephala* (Meigen, 1824)

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Material examined. 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)

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Reference. Grichanov et al. 2010.

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*Campsicnemus* Haliday, 1851

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*Campsicnemus* sp.

23

Material examined. 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).

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*Campsicnemus umbripennis* Loew

26

Material examined. Markazi province: Haji Abad, 13-Apr-15, 34°04.16' N, 49°42.21 E, 1700 m, on *Medicago sativa*, 1♂ (Leg. A.Ahmadi).

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- Reference. Kazerani et al. 2014(a). 1
- Chrysotus* Meigen, 1824 2
- Chrysotus angulicornis* Kowarz, 1874) 3
- Material examined. Markazi province: Khondab, 19-May-15, 34°23.30' N, 55°11.05' E, 1700 m, on *Medicago sativa*, 5♂14♀ (Leg. A.Ahmadi). 5
- Reference. Grichanov et al. 2010; Kazerani et al. 2014(b). 6
- Chrysotus suavis* Loew, 1857 7
- Material examined. 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♀; Shahsavaran, 27-Apr-15, 34°10.26' N, 56°01.09' E, 1700 m, on *Medicago sativa*, 1♀ (Leg. A.Ahmadi). 11
- Reference. Grichanov et al. 2010; Kazerani et al. 2014(b). 12
- Dolichopus* Latreille, 1796 13
- Dolichopus excisus* Loew, 1859 14
- Material examined. 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). 17
- Reference. Grichanov et al. 2010. 18
- Dolichopus griseipennis* Stannius, 1831 19
- Material examined. Markazi province: Hak Sofla, 28-Aug-15, 33°59.58' N, 55°22.06' E, 1900 m, *Typha* sp., 1♀ (Leg. A.Ahmadi). 21
- Reference. Grichanov et al. 2010; Kazerani et al. 2013(a); Gharajedaghi et al. 2014 22
- Dolichopus signifer* Haliday, 1832 23
- Material examined. 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°22.90' E, 2120 m, *Mentha* sp. and *Equisetum* 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♀; 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♂2♀ (Leg. A.Ahmadi). 9

Reference. Grichanov et al. 2010; Khaghaninia et al. 2013; Kazerani et al. 2013(a) 10

*Medetera* Fischer von Waldheim, 1819 11

*Medetera jacula* (Fallén, 1823) 12

Material examined. 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°56.475 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♀; Lorestan province: Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on *Mentha* sp. under *Salix* sp. (Trees), 31♂4♀, 22-Sep-15, 33°05.86' N, 49°39.62 E, 2121 m, on *Mentha* sp. and *Alhaji* sp., 1♀ (Leg. A.Ahmadi). 24

Remarks. *Medetera jacula* and *M. meridionalis* Negrobov, 1967 are abundant sister species in Iran, hardly differing from each other by habitual characters. Grichanov & Olyannikova (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 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 13

<b>bristles on mesonotum and the shape of fine microscopic setae on apex of surstyli. New record for Iran.</b>	2
<i>Poecilobothrus</i> Mik, 1878	3
<i>Poecilobothrus principalis</i> (Loew, 1861)	4
<u>Material examined.</u> Markazi province: Hak, 10-Jul-15, 34°59.58' N, 55°22.06 E, 1900 m, on <i>Juncus</i> sp. and <i>Salix</i> sp. (Trees), 1♀ (Leg. A.Ahmadi).	6
<u>Reference.</u> Kazerani et al. 2014(d).	7
<i>Rhaphium</i> Meigen, 1803	8
<i>Rhaphium</i> sp.	9
<u>Material examined.</u> Markazi province: Hendoogar, 13-Sep-15, 33°46.61' N, 49°14.45 E, 2070 m, on <i>Juncus</i> sp., 3♀; Lorestan province: Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on <i>Mentha</i> sp. under <i>Salix</i> sp. (Trees), 1♀ (Leg. A.Ahmadi).	12
<i>Rhaphium albifrons</i> Zetterstedt, 1843	13
<u>Material examined.</u> Markazi province: Kouhin, 27-Jul-15, 34°37.51' N, 49°56.75 E, 2053 m, on <i>Juncus</i> sp. and <i>Mentha</i> sp. under <i>Salix</i> sp. and <i>Juglans regia</i> (Trees), 1♂ (Leg. A.Ahmadi).	15
<u>Diagnosis.</u> <i>Rh. albifrons</i> 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).	18
<b>New record for Iran.</b>	19
<i>Rhaphium appendiculatum</i> Zetterstedt, 1849	20
<u>Material examined.</u> Markazi province: Gavgodar, 31-Aug-15, 34°06.45' N, 49°21.80 E, 1826 m, on <i>Typha</i> sp., <i>Salvia</i> sp., <i>Juncus</i> sp. and <i>Salix</i> sp., 1♂; Lorestan province: Chaghan, 22-Sep-15, 33°48.88' N, 49°29.88 E, 2070 m, on <i>Juncus</i> sp., 1♂, 22-Sep-15, 33°35.18' N, 49°29.87 E, 2034 m, on <i>Juncus</i> sp. and <i>Mentha</i> sp., 1♀; Khak Patieh, 22-Sep-15, 33°07.83' N, 49°39.48 E, 2061 m, on <i>Mentha</i> sp. under <i>Salix</i> sp. (Trees), 2♂ (Leg. A.Ahmadi).	25
<u>Reference.</u> Kazerani et al. 2013(b).	26
<i>Sympycnus</i> Loew, 1857	27
<i>Sympycnus pulicarius</i> (Fallén, 1823)	28

- Material examined. Markazi province: Galehchi Olya, 28-Sep-15, 33°57.53' N, 49°07.46' E, 2153 m, on *Medicago sativa*, 1♂ (Leg. A.Ahmadi). 2
- Reference. Kazerani et al. 2014(a). 3
- Syntormon* Loew, 1857 4
- Syntormon aulicus* (Meigen, 1824) 5
- Material examined. 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). 7
- Reference. Kazerani et al. 2014(c). 8
- Syntormon denticulatus* (Zetterstedt, 1843) 9
- Material examined. 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 balbosa* 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 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). 20
- Reference. Kazerani et al. 2014(c). 21
- Syntormon pallipes* (Fabricius, 1794) 22
- Material examined. 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♂; 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), 40♂39♀; Golbahar Sheikh Miri, 22-Sep-15, 33°11.60' N, 49°40.22' E, 2049 m, on *Poa balbosa* 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♀ (Leg. A.Ahmadi). 2

Reference. Negrobov & Matile 1974; Grichanov et al. 2010; Gharajedaghi et al. 2014; Kazerani et al. 2014 (c). 4

*Teuchophorus* Loew, 1857 5

*Teuchophorus* sp. 6

Material examined. 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). 8

*Thrypticus* Gerstaecker, 1864 9

*Thrypticus bellus* Loew, 1869 10

Material examined. 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, 1877m, on *Juncus* sp. under *Juglans regia* (Trees), 4♂9♀; Tafresh, 13-27-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♀; 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♀ (Leg. A.Ahmadi). 15

Remarks. Negrobov (1991) included Iran in the area of medeterinae 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 for Iran.** 25

**Discussion** 26

The identified species of the family Dolichopodidae were sampled in the height of 1519 – 2317 from the sea level. Most collected species are widespread across the Palearctic Region. According to sampling data, the species of *S. pallipes* and *T. bellus* respectively have the highest total identified species and additionally *M. jacula*, *S. denticulatus*, *S. pallipes* respectively, have the highest total distribution. According with Kazerani et al. (2014e), the



Iranian fauna of Dolichopodidae includes 104 species known mainly from northern and northwestern Iran. Later, four species of the genus *Sciapus* Zeller, 1842, collected from forests of northern Iran (Mazandaran 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.

6

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