

Additional notes about long-legged flies (Diptera: Dolichopodidae) in East Azerbaijan province of Iran

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Abstract. A survey was conducted during 2009-2011 in order to study the family Dolichopodidae in East Azerbaijan province (Iran). Five genera and eight species of the family are recognized. Six species (*Dolichopus longitarsis* Stannius, 1831, *D. salictorum* Loew, 1871, *D. simplex* Meigen, 1824, *Hercostomus fulvicaudis* (Haliday, 1851), *Sciapus flavicinctus* (Loew, 1857), and *Sybistroma nodicornis* Meigen, 1824) are recorded from Iran for the first time.

Key words: Dolichopodidae, long-legged flies, East Azerbaijan province, Iran, new records.

Introduction

The family Dolichopodidae (Diptera) is one of the higher families of the suborder Brachycera (Orthorrhapha), with more than 7500 described species and 276 genera (Grichanov, 2007). Species of this family are known as long-legged flies, because legs in most species are very long and adult bodies are slender. Male genital capsule is usually enlarged and called hypopygium. Most larvae and adults of Dolichopodidae are polyphagous predators. Adults often have metallic green body, but some species are brown, yellow or black. The external morphology of most Dolichopodidae is rather remarkable that allows easily distinguishing them in a sweeping net even from the closest Empidoidea and other flies by metallic body and mosquito-like habitus with long legs. The head is more or less hemispherical, antennae are generally inserted at the upper third of head, thorax has more or less parallelepiped (subrectangular) shape, convex laterally, legs are generally long and slender, wings are usually long and narrow, being sometimes narrower or broader in males, with abdomen longer or shorter, sometimes even shorter than thorax (Grichanov, 2007).

Grichanov (2007) and Grichanov et al. (2011) prepared keys to East Mediterranean and Palaearctic subfamilies, genera and species of Dolichopodidae. The first contribution to the fauna of Dolichopodidae of Iran was made by Becker and Stein (1913). Nevertheless, the long-legged flies of Iran are poorly known, with 38 species in 17 genera belonging to seven subfamilies (Diaphorinae, Dolichopodinae, Hydrophorinae, Medeterinae, Neurigoninae, Rhamphiinae and Sciapodinae) found there so far (Grichanov et al., 2010).

Materials and Methods

Materials were collected by a standard entomological hand net from grassland and semi-aquatic habitats in seven region of East Azerbaijan province during 2009-2011. The flies were killed in a killing jar containing potassium cyanide. Materials were preserved in 75% ethanol in glass vials. Collected specimens were deposited at the Insect Museum of Tabriz University (IMTU). Species are listed below in alphabetic order. Distribution part of the list includes adjacent countries and notes on the general distribution for each species after Grichanov (2007) and Grichanov's online database DoliBank (available from <http://dolicho.narod.ru/Genera3.htm>).

Results

In this study, eight species of five genera belonging to three subfamilies (Dolichopodinae, Rhamphiinae and Sciapodinae) of the family Dolichopodidae are recognized. Six species (*Dolichopus longitarsis* Stannius, 1831, *D. salictorum* Loew, 1871, *D. simplex* Meigen, 1824, *Hercostomus fulvicaudis* (Haliday, 1851), *Sciapus flavicinctus* (Loew, 1857), *Sybistroma nodicornis* Meigen, 1824) are recorded from Iran for the first time. In addition, *Dolichopus signifer* Haliday, 1832 and *Rhamphium micans* (Meigen, 1824) are recorded for the first time from the East Azerbaijan province.

Subfamily Dolichopodinae

Dolichopus longitarsis Stannius, 1831

Material examined: 1 ♂, Chichakli, 38°39' N, 46°31' E, 2140 m a.s.l., 5 Aug. 2009.

Diagnosis: Antenna black. Face silvery white. Facial clypeus at apex straight. Lower postocular cilia black. Costa of wing with distinct stigma at R_1 . Femora yellow, with one subapical seta. Mid basitarsus without dorsal seta, mid tibia with only one ventral seta. Hind femur with ventral fringe of long cilia. Hind tibia with numerous long dorsal setae. Fore tibia without long apicoventral seta. Fore basitarsus mainly pale yellow. Hind basitarsus black, with 4 dorsal setae. Hypopygium reaching 2nd segment of abdomen, cercus approximately rounded, yellow with dark brown margin (Fig. 1).

Distribution: Austria, Belarus, Belgium, Denmark, Estonia, Finland, France, Georgia, Germany, Hungary, Ireland, Kazakhstan, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Russia (Karelia, Leningrad, Moscow, Nenetsia, Pskov, Vologda, Voronezh), Slovakia, Spain, Sweden, Switzerland, Turkey, UK and Ukraine (Cherkasy). New to the Iranian fauna.

Dolichopus salictorum Loew, 1871

Material examined: 2 ♂♂, Qurigol, 37°54' N 46°42' E, 1921 m a.s.l., 6 Jun. 2011.

Diagnosis: Antennal scape and pedicel yellow, postpedicel 1/5 times longer than high, brown. Face white. Facial clypeus at apex straight. Costa of wing with distinct long stigma at R_1 . Lower calypter with black cilia. Legs largely yellow. Hind femur with one subapical anterior seta, with

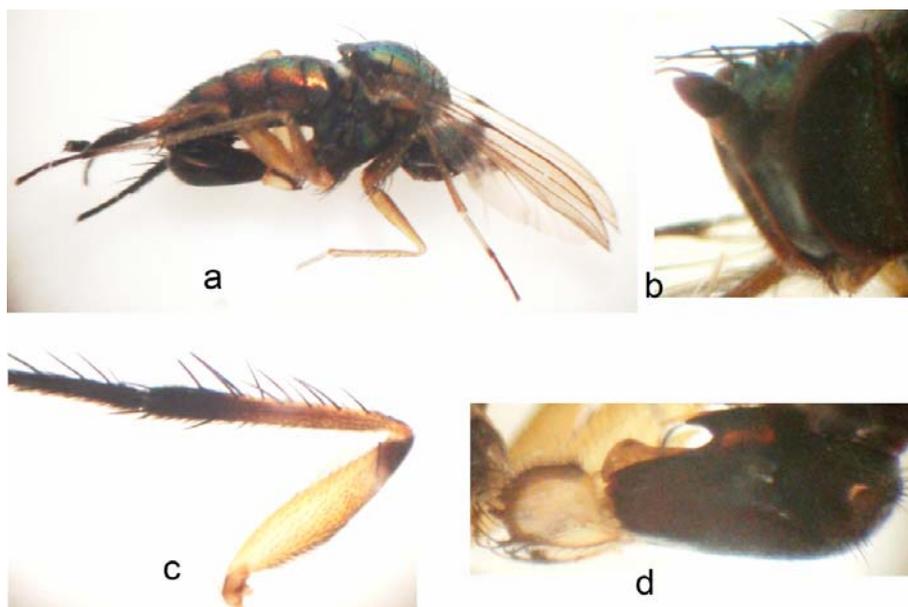


Figure 1. *Dolichopus longitarsis*; a) male habitus, lateral view, b) head, lateral view, c) hind leg, lateral view, d) hypopygium, lateral view.

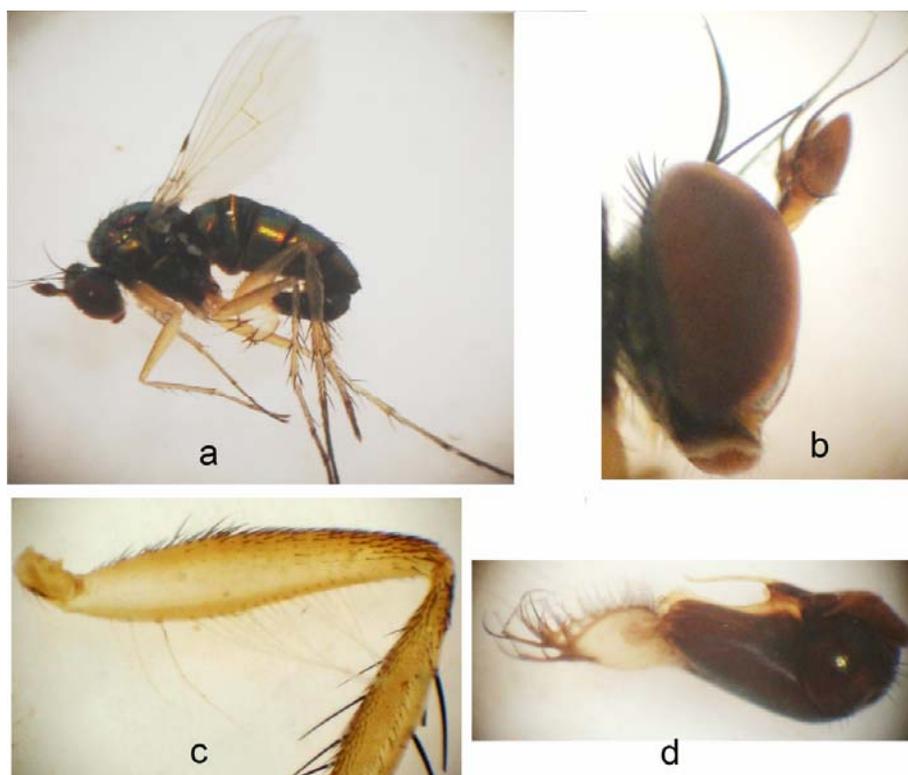


Figure 2. *Dolichopus salictorum*; a) male habitus, lateral view, b) head, lateral view, c) hind leg, lateral view, d) hypopygium, lateral view.

ventral fringe of long pale yellow cilia. Hind tibia slightly thickened, with numerous long dorsal and ventral setae. Hind basitarsus with 3 dorsal setae. Lower postocular cilia pale yellow. Hypopygium reaching to 3rd segment of abdomen. Cercus approximately triangular, light yellow with brown margin. Body size 5.5-6 mm (Fig. 2).

Distribution: Bulgaria, Czech Republic, Hungary, Italy, Poland, Romania, Russia (Krasnodar, Voronezh), Slovakia

and Ukraine (Lviv, Odessa). New to the Iranian fauna.

Dolichopus signifer Haliday, 1832

Material examined: 1 ♂, Maraghe, 37°25' N, 46°25' E, 1787 m a.s.l., 25 Jun. 2009; 5 ♂♂, Chichakli, 38°35' N, 46°14' E, 1219 m a.s.l., 29 Jul. 2009; 2 ♂♂, Qurigol, 37°54.975' N, 46°41', 120 E, 1943 m a.s.l., 9 Jul. 2010; 3 ♂♂, Kandovan, 37°44' N, 46°19' E, 3005 m a.s.l., 6 Jun. 2011.

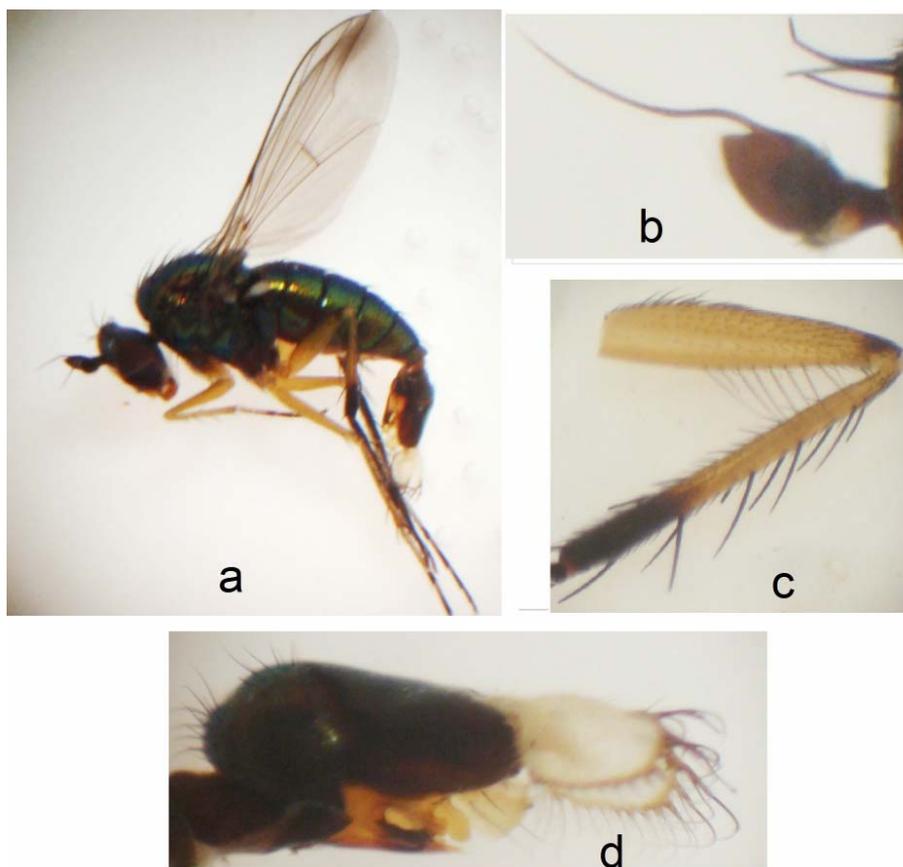


Figure 3. *Dolichopus signifier*; a) male habitus, lateral view, b) antenna, lateral view, c) hind leg, lateral view, d) hypopygium, lateral view.

Diagnosis: Antenna black, scape ventrally yellow at apex. Face dark green with white pubescence. Facial clypeus at apex straight. Lower postocular cilia pale. Wing darkened at apex, costa thickened at R_1 . Lower calypter with black cilia. Legs with colour variation, mostly black or yellow. Mid and hind femora with one subapical seta. Hind femur with ventral fringe of long black cilia, hind tibia with numerous long dorsal and one ventral setae. Fore tibia with long and pale apicoventral seta. Hind basitarsus with 1 dorsal seta and numerous small ventral setae. Hypopygium reaching middle of 4th segment of abdomen. Cercus approximately ovoid, light yellow, with brown margin. Body size 4 mm (Fig. 3).

Distribution: Afghanistan, Armenia, Austria, Azerbaijan, Azores, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Georgia, Greece incl. North Aegean, Hungary, Iran, Ireland, Italy, Kazakhstan, Morocco, Netherlands, Norway, Poland, Romania, Russia (Kabardino-Balkaria, Krasnodar, Rostov, Voronezh), Slovakia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, UK, Ukraine (Crimea, Odessa) and Uzbekistan.

***Dolichopus simplex* Meigen, 1824**

Material examined: 4 ♂♂, Isperekhan, 37°46' N, 46°24' E, 2504 m a.s.l., 8 Aug. 2010. 1 ♂, Chichakli, 38°38' N, 46°14' E, 1429 m a.s.l., 29 Jul. 2009.

Diagnosis: Antennal scape yellow, pedicel yellow ventrally, postpedicel dark brown. Face yellow. Facial clypeus at apex straight. Lower postocular cilia pale. Wing darkened. Lower

calypter with black cilia. Legs mainly yellow. Mid and hind femora with one subapical seta. Hind tibia with numerous long dorsal and ventral setae. Hind basitarsus with 2 dorsal setae. Hypopygium reaching to 3rd segment of abdomen. Cercus approximately rectangular, light yellow, with brown margin. Body size 4 mm (Fig. 4).

Distribution: Armenia, Austria, Belarus, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Hungary, Ireland, N Kazakhstan, Latvia, Lithuania, Netherlands, Norway, Poland, Russia (Karelia, Komi, Murmansk, Leningrad, Vologda, Pskov, Novgorod; Belgorod, Kaluga, Kirov, Kursk, Mordovia, Nizhnii Novgorod, Moscow, Lipetsk, Voronezh; Karachai-Cherkessia, Krasnodar, Rostov; Orenburg, Yakutia), Slovakia, Sweden, Switzerland, UK, Ukraine (Cherkasy, Odessa). New to the Iranian fauna.

***Hercostomus fulvicaudis* (Haliday, 1851)**

Sybistroma fulvicaudis Haliday, 1851

Material examined: 1 ♂, 1 ♀, Gharadagh forests, 38°53' N, 46°48' E, 1859 m a.s.l., 20 Jun. 2010.

Diagnosis: Antenna mostly yellow, light brown at apex, postpedicel 1.5 times longer than high, stylus bare. Face white. Lower postocular cilia pale. Metapleuron bare, scutellum without dorsal hairs, R_{4+5} and M_{1+2} convergent. Lower calypter with pale cilia. Legs yellow. Mid and hind femora with one subapical seta. Mid tibia with long setae in basal, median and apical parts. Hypopygium reaching to 4th segment of abdomen, rounded, mainly yellow with black-brown margin, cercus triangular, without distal emargina-

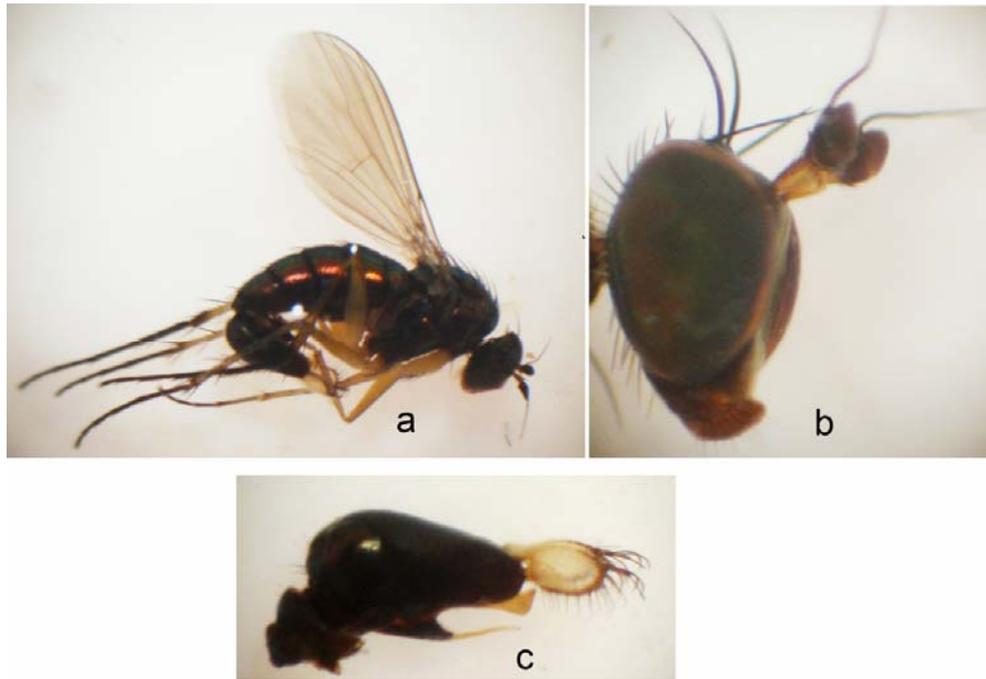


Figure 4. *Dolichopus simplex*; a) male habitus, lateral view, b) head, lateral view, c) hypopygium, lateral view.

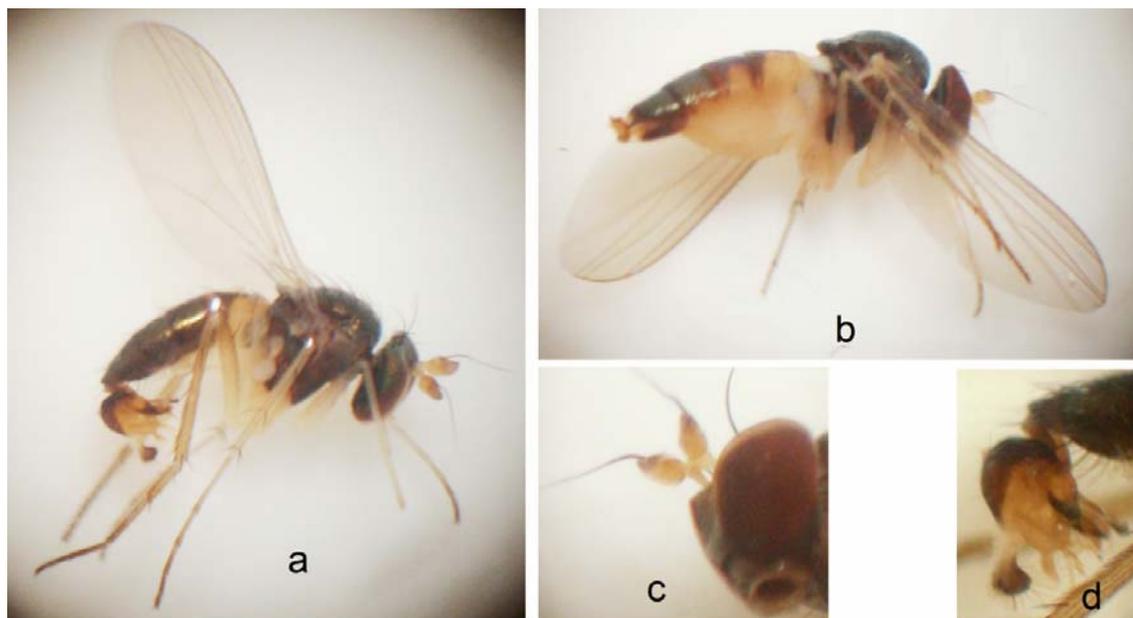


Figure 5. *Hercostomus fulvicaudis*; a) male habitus, lateral view, b) female habitus, lateral view, c) head, lateral view, d) male hypopygium, lateral view.

tion, half as long as hypopygium, black-brown, yellow at base, with long yellow cilia. Body size 2-2.5 mm (Fig. 5).

Distribution: Austria, Belgium, Palaeartic China, Czech Republic, Estonia, France, Germany, Hungary, Netherlands, Poland, Romania, Russia (Lipetsk, Voronezh), Slovakia, Sweden, Tajikistan, Turkmenistan, UK, Ukraine (Kherson, Odessa, Uzhhorod). New to the Iranian fauna.

Sybstroma nodicornis Meigen, 1824

Material examined: 2 ♂♂, Kandovan, 37°46' N, 46°15' E, 2341 m, 25 June 2010.

Diagnosis: Antenna mainly black, scape yellow ventrally, stylus widened in middle and flattened at apex, postpedicel nearly 3 times as long as high. Face golden. Lower postocular cilia black. Lower calypter with black cilia. Coxa black, femora and tibia yellow, 3rd and 4th segments of mid tarsus widened and black. Hypopygium reaching to 3rd segment of abdomen, black, cercus yellow and triangular, truncate and black at apex. Body size 4 mm (Fig. 6).

Distribution: Austria, Belgium, Bulgaria, Czech Republic, Egypt, France, Germany, Greece, Hungary, Iraq, Italy, Neth-

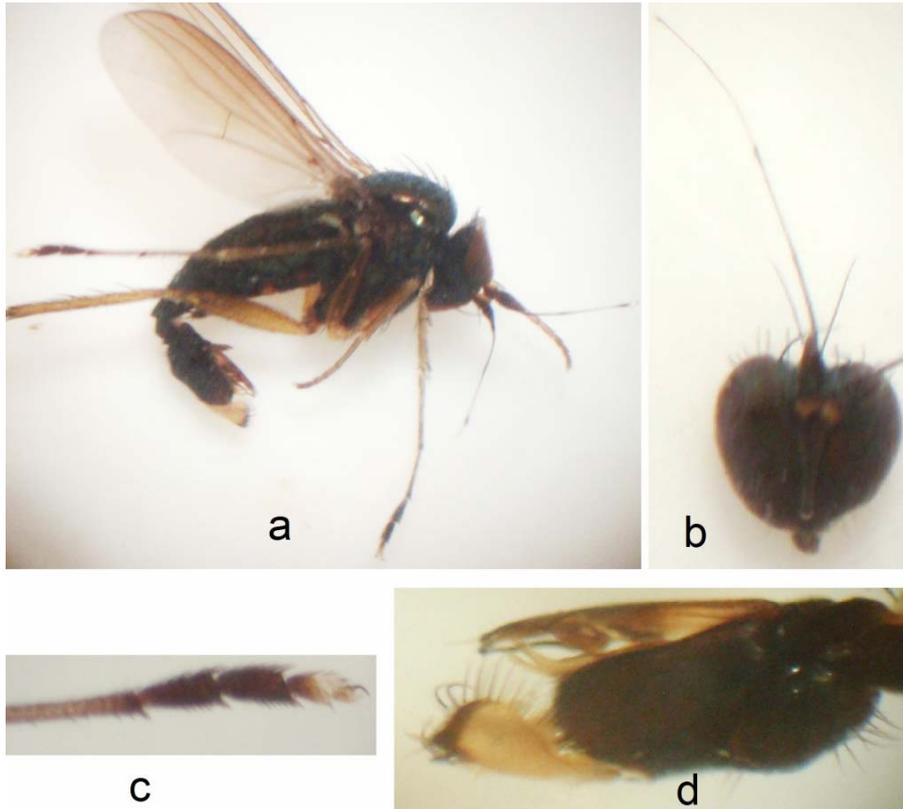


Figure 6. *Sybistroma nodicornis*; a) male habitus, lateral view, b) head, front view, c) mid tarsus, lateral view d) hypopygium, lateral view.

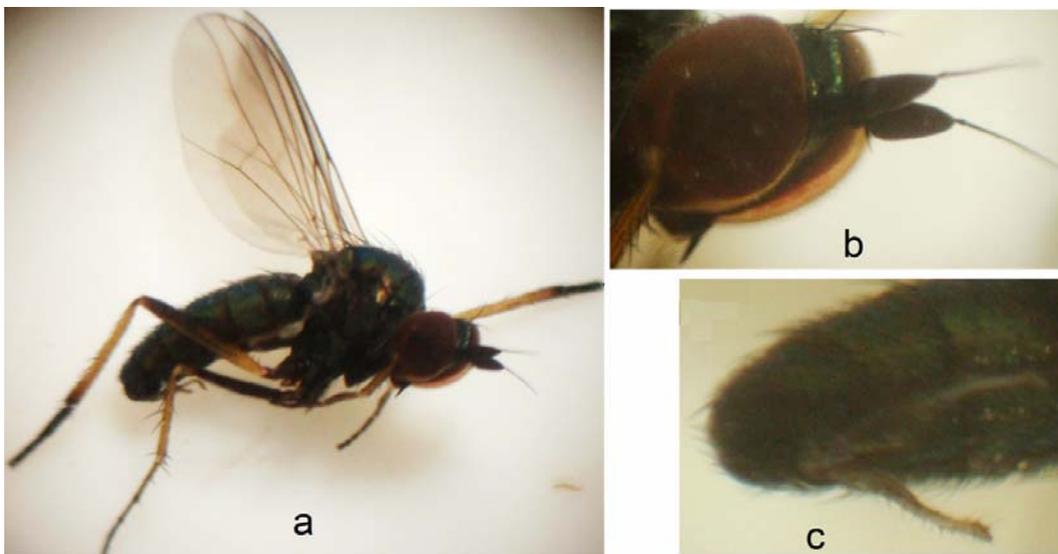


Figure 7. *Rhaphium micans*; a) male habitus, lateral view, b) head, lateral view, c) hypopygium, lateral view.

erlands, S Russia, Romania, Slovakia, Switzerland and Turkey. New to the Iranian fauna.

Subfamily Rhapsiinae

Rhaphium micans (Meigen, 1824)

Porphyrops micans Meigen, 1824

Material examined: 1 ♂, Ajabshir, 37°31' N, 46°07' E, 1662 m a.s.l., 10 Apr. 2009.

Diagnosis: Antenna black, postpedicel long and narrow, higher than scape and flattened laterally. Face black. Lower postocular cilia pale. Lower calypter with pale cilia. Coxa black, fore and mid femora black, hind femora black dorsally and yellow ventrally. Hypopygium reaching to middle of 4th segment of abdomen, black, cercus elongate, dark, with short hairs. Body size 5 mm (Fig. 7).

Distribution: Abkhazia, Austria, Azerbaijan, Belarus,

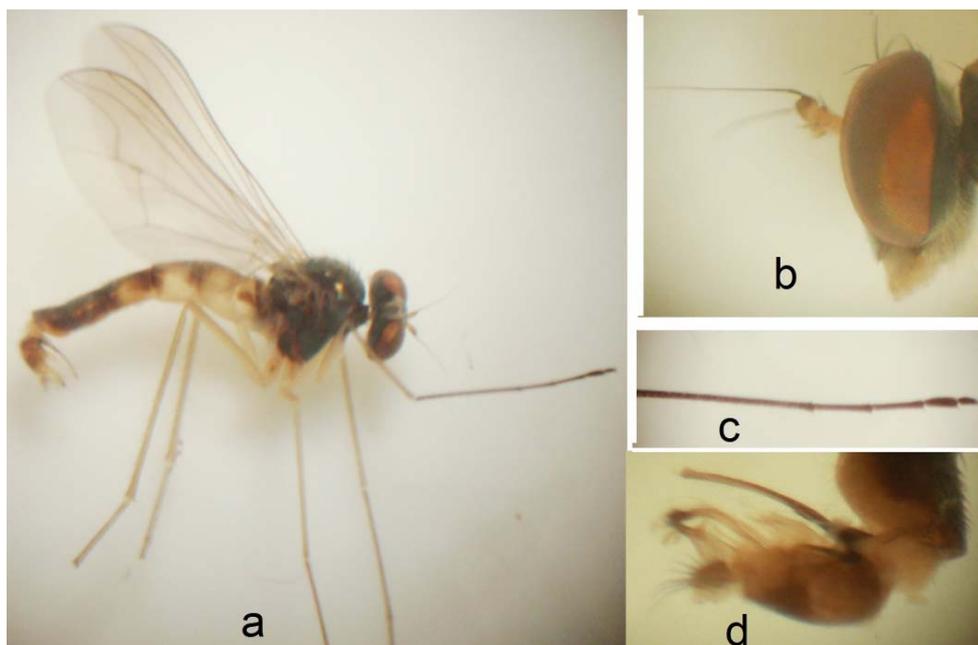


Figure 8. *Sciapus flavicinctus*; a) male habitus, lateral view, b) head, lateral view, c) hypopygium, lateral view.

Belgium, Bulgaria, Palearctic China, Czech Republic, Finland, France, Germany, Hungary, Iran, Italy, Latvia, Netherlands, Norway, Poland, Romania, Russia (Adygea, Astrakhan, Kabardino-Balkaria, Karelia, Karachai-Cherkessia, Krasnodar, Leningrad, Pskov, Rostov, Ryazan, Voronezh, Krasnoyarsk, Primorskii Terr.), Slovakia, Spain, Sweden, Switzerland, Tajikistan, Turkey, UK.

Subfamily Sciapodinae

Sciapus flavicinctus (Loew, 1857)

Psilopus flavicinctus Loew, 1857

Material examined: 1 ♂, 1 ♀, Gharadagh forests, 38°51' N, 46°52' E, 1770 m a.s.l., 20 Jun. 2010.

Diagnosis: Antennal scape and pedicel yellow, postpedicel light brown. Face white polinose. Lower postocular cilia in numerous rows and pale. Lower calypter with pale cilia. Legs yellow, fore tarsus modified, black, hind basitarsus as long as next segment. Hypopygium reaching to 4th segment of abdomen, organ X of hypopygium with a strongly arcuate dorsal horn and with a plain bunch of long setae on its apicoventral angle. Body size 5 mm (Fig. 8).

Distribution: Azerbaijan, Bulgaria, Denmark, France, Germany, Greece incl. Crete, Hungary, Italy, Romania, Russia (Krasnodar, North Ossetia), Slovakia, Turkey. New to the Iranian fauna.

Discussion

A total of 38 dolichopodids have been recorded by previous studies (Grichanov et al., 2010). The present paper adds 6 new species, which increases the national list of Iran to 44 species discovered mainly during the last years. This number includes probably 15% of the total dolichopodid fauna of the country. For comparison, more than 220 species are known for the Russian Northwestern Caucasus (Grichanov, 2012). Therefore, a discussion on the zoogeography of Iranian dolichopodid fauna is premature.

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