

Genus *Sciapus* (Diptera: Dolichopodidae) in Iran, with description of one new species and new records

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Abstract. A new species of the genus *Sciapus* Zeller, 1842, *S. talebii* Kazerani & Grichanov sp. nov., is described, and three species are recorded for the Iranian fauna for the first time: *Sciapus basilicus* Meuffels & Grootaert, 1990, *Sciapus heteropygus* Parent, 1926, and *Sciapus medvedevi* Negrobov & Selivanova, 2009. Geographical distribution and a key to the species of Iranian *Sciapus* are provided.

Key words. Diptera, Dolichopodidae, long-legged flies, Sciapodinae, *Sciapus*, new species, taxonomy, key, new records, Iran

Introduction

Sciapus Zeller, 1842, the type genus of the subfamily Sciapodinae, contains 70 Holarctic species including 55 species from the Palaearctic Region, one Oriental and one Afrotropical species (GRICHANOV et al. 2011). The genus differs morphologically from the other genera of the subfamily Sciapodinae by the combination of following characters: arista dorsal, arising from base of postpedicel and not much longer than width of head; wing vein M_2 present, almost reaching wing margin; hind femur with distinct anterior preapical bristle (absent in some Palaearctic species); propleuron without strong ventral setae; abdomen elongate; abdominal plaques present on tergites 2–5, but reduced in males; male cerci either free and simple or forming unpaired ventral projection ('Organ X') (GRICHANOV et al. 2011).

BICKEL (1994) reviewed the Oriental and Australasian faunas, and provided a world conspectus of the subfamily Sciapodinae. MEUFFELS & GROOTAERT (1990) revised the *Sciapus contristans* species group. GRICHANOV et al. (2010) reported the genus *Sciapus* from Iran. Afterward KHAGHANINIA et al. (2013) reported *S. flavicinctus* (Loew, 1857) from Iran and GRICHANOV & NEGROBOV (2014) described a new species, *S. iranicus* Grichanov & Negrobov, 2014, from Iran. This genus is poorly studied in Iran and further research is necessary. The purpose of this paper is to provide faunistic data on the *Sciapus* species in Iran.

Material and methods

The material for this study was collected from forests of northern Iran (Mazandran and Guilan provinces) using Malaise traps during 2010–2011, from March to November. The collected specimens were extracted from the traps weekly and transferred to the laboratory. The material was preserved in 75% ethanol in glass vials. In order to prepare the male genitalia, the end of abdomen was removed and boiled in 10% KOH solution for 45–60 minutes and then placed in acetic acid for 60 second, afterwards being washed in distilled water and stored in 0.5 ml microvials with glycerin. The specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran, Iran (TMUC) and the Insect Collection of Professor Hasan Maleki Milani, Tabriz, Iran (ICHMM).

Morphological terminology follows McALPINE (1981) and CUMMING & WOOD (2009). Distribution data include adjacent countries and notes on the general distribution for each species following GRICHANOV (2007) and online database DoliBank (GRICHANOV 2014).

Results

Five species of the genus *Sciapus* were collected and identified from the studied area, including three species as new records for Iran, i.e. *Sciapus basilicus* Meuffels & Grootaert, 1990, *S. heteropygus* Parent, 1926, *S. medvedevi* Negrobov & Selivanova, 2009, and the first record of *Sciapus iranicus* Grichanov & Negrobov, 2014 after its description, as well as a new species, *Sciapus talebii* Kazerani & Grichanov sp. nov. Based on this study, the number of Iranian species of the genus *Sciapus* has increased to six.

Genus *Sciapus* Zeller, 1842

Type species. *Dolichopus platypterus* Fabricius, 1805

Key to males of *Sciapus* species known to occur in Iran

- 1 Tarsi with one or more segments enlarged or bearing remarkable setae. 2
 - All tarsi simple. 4
- 2 Fore tarsus simple, mid tarsus modified; 3rd–4th segments of mid tarsus with black ventral setae. *S. medvedevi* Negrobov & Selivanova, 2009
 - Fore tarsus modified, mid tarsus simple. 3
- 3 1st–4th segments of fore tarsus with black ventral hairs longer than diameter of tarsus. *S. iranicus* Grichanov & Negrobov, 2014
 - 3rd and 4th segments of fore tarsus compressed, black, with short hairs. *S. flavicinctus* (Loew, 1857)
- 4 Cerci free from base; surstylus deeply bifurcated (Figs 7–8). *S. talebii* Kazerani & Grichanov sp. nov.
 - Cerci free in distal half; surstylus bifurcated from mid length, with narrow curved lobes. 5

- 5 Abdomen yellow, with green bands on the lateral margin of tergites (Fig. 12); cercus half as long as surstylus; surstylus with simple setae (Fig. 14).
 *S. heteropygus* Parent, 1926
- Abdomen dark green, sometimes with yellow spots on the basal segments (Fig. 9); surstylus very broad, about 2 times higher than process of cercal projection (Fig. 11).
 *S. basilicus* Meuffels & Grootaert, 1990

***Sciapus talebii* Kazerani & Grichanov sp. nov.**

(Figs 1–8)

Type locality. Iran, Guilan province, Eshmankamachal, 37°22'03.66"N, 49°57'57.84"E, 10 m a.s.l.

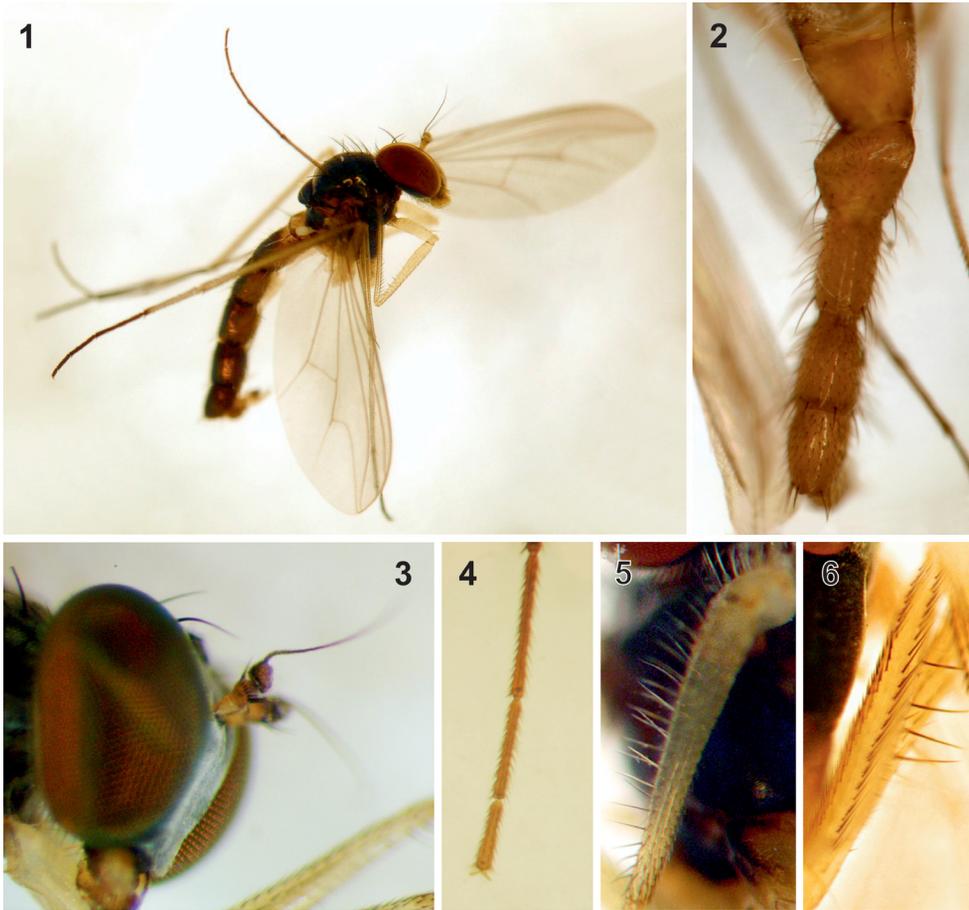
Type material. HOLOTYPE: ♂, **IRAN: GUILAN:** Eshmankamachal, 37°22'03.66"N, 49°57'57.84"E, 10 m a.s.l., 22.vi.2010, M. Khayrandish leg. (TMUC). PARATYPE: 1 ♂, 16.viii.2010, otherwise same locality data as the holotype (ICHMM, the mid and hind legs of the paratype are missing).

Diagnostic characters. The new species is taxonomically related to the Caucasian *S. richterae* Negrobov & Grichanov, 2010, but having simple fore tarsus (apical segment is enlarged in *S. richterae*), different podomere ratios and morphology of hypopygium; nevertheless, both species have free cerci without ventral cercal projection ('Organ X'), bear peculiar ventral setation on all femora, have no true anterior preapical seta on hind femur, strongly differing from other known Palaearctic species (GRICHANOV 2007, NEGROBOV & GRICHANOV 2010).

Description. Male. Body length 4.8–5.3 mm, wing length 4.2–4.6 mm, wing width 1.5–1.7 mm, antenna length 1.2 mm, hypopygium length 0.7 mm.

Head. Frons and face densely white pollinose, under antennae 3 times wider than postpedicel height, clypeus and convex epistome separated by distinct transverse suture; proboscis yellowish brown; palpus brownish yellow, with 1 strong black seta at apex and numerous yellow hairs; antenna with scape and pedicel yellow, pedicel with long and short black hairs, postpedicel brown, yellow at base and higher than long with short yellow hairs; stylus dorsal, brown and long, shortly haired (Fig. 3); postocular setae entirely white.

Thorax. Metallic green, grey pollinose; mesonotum with black setae; 6 long dorsocentrals; acrostichals biseriate along whole mesonotum length; scutellum with 2 strong median and 2 fine lateral setae; legs yellow, mid coxa with black spot at basal half, tarsi brown from tip of basitarsus, coxae with long yellow hairs, fore coxa with a few short yellow setae at base and long yellow setae at apex; fore femur with 2 rows of long white hairs (Fig. 5), longer than femur width ventrally and posteroventral rows of shorter black hairs; fore tibia with 2 rows of yellow ventral setae which are not longer than width of tibia (Fig. 4); mid femur with a row of long black ventral setae, and with long fine white anteroventral cilia, longer than width of femur (Fig. 6), anterior preapical seta not present; mid tibia with 1 small anterodorsal and 1 small middorsal setae, 2 long apicals; tarsomeres simple, with short ventral and apical setae; hind femur with a row of long yellow setae ventrally; hind tibia and basitarsus with short black setae; fore leg length ratio (from tibia to tarsomere 5): 52/65/28/18/16/11, mid leg: 70/65/20/14/8/6, hind leg: 97/34/30/16/10/6; wing hyaline; costa straight; ratio of part of costa between R_{2+3} and R_{4+5} to that between R_{4+5} and M_1 : 27/3; cross-vein dm-cu straight; M_2 and CuA distinct, anal lobe well developed; anal angle acute; lower calypter with yellow cilia; halter yellow.

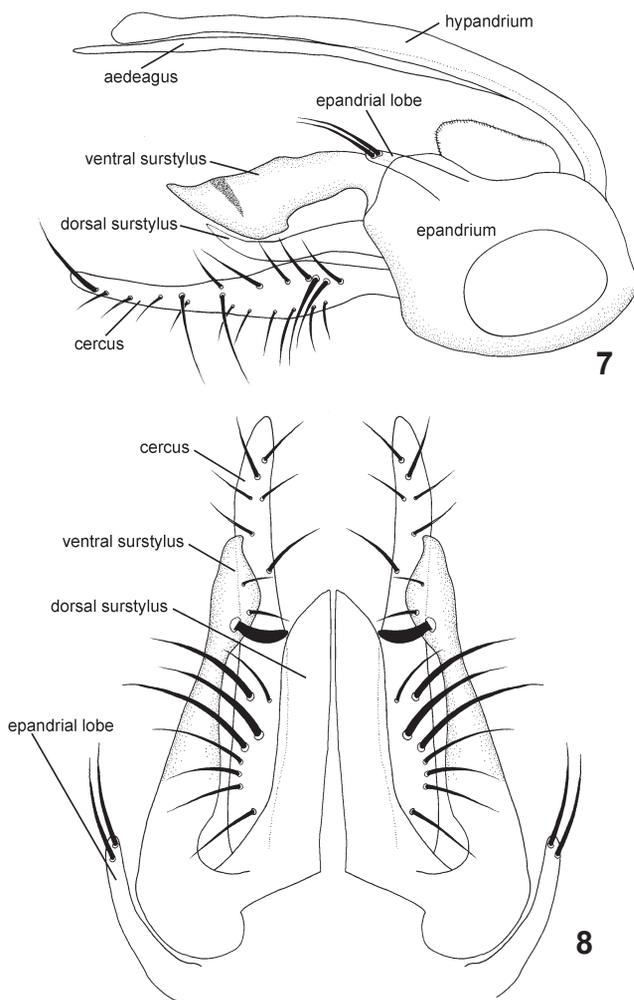


Figs 1–6. *Sciapus talebii* Kazerani & Grichanov sp. nov. 1 – male habitus, lateral view; 2 – dorsal view of abdomen; 3 – lateral view of head; 4 – 3rd–5th segments of fore tarsus; 5 – fore femur; 6 – mid femur.

Abdomen. Metallic green (Fig. 1), with mainly black hairs, length of hairs at the lateral and hind margins about half length of tergites; 1st tergite with yellowish-white hairs; sternites with yellowish-white hairs (Fig. 2).

Genitalia. Hypopygium dark; hypandrium long and slender; surstylus deeply bifurcated, with ventral (outer) arm strongly curved, broad, widened ventrally in distal third and pointed at apex, with a strong, flattened subapical seta, dorsal (inner) arm thin, weakly curved (Fig. 7); epandrial lobe long and slender, with 2 long apical seta; cercus free, long, with long black setae, 5 times longer than wide at base (Fig. 8), no ventral projection (‘Organ X’).

Female. Unknown.



Figs 7–8. *Sciapus talebii* Kazerani & Grichanov sp. nov. 7 – hypopygium, left lateral view; 8 – dorsal view of cerci, surstyli and epandrial lobes.

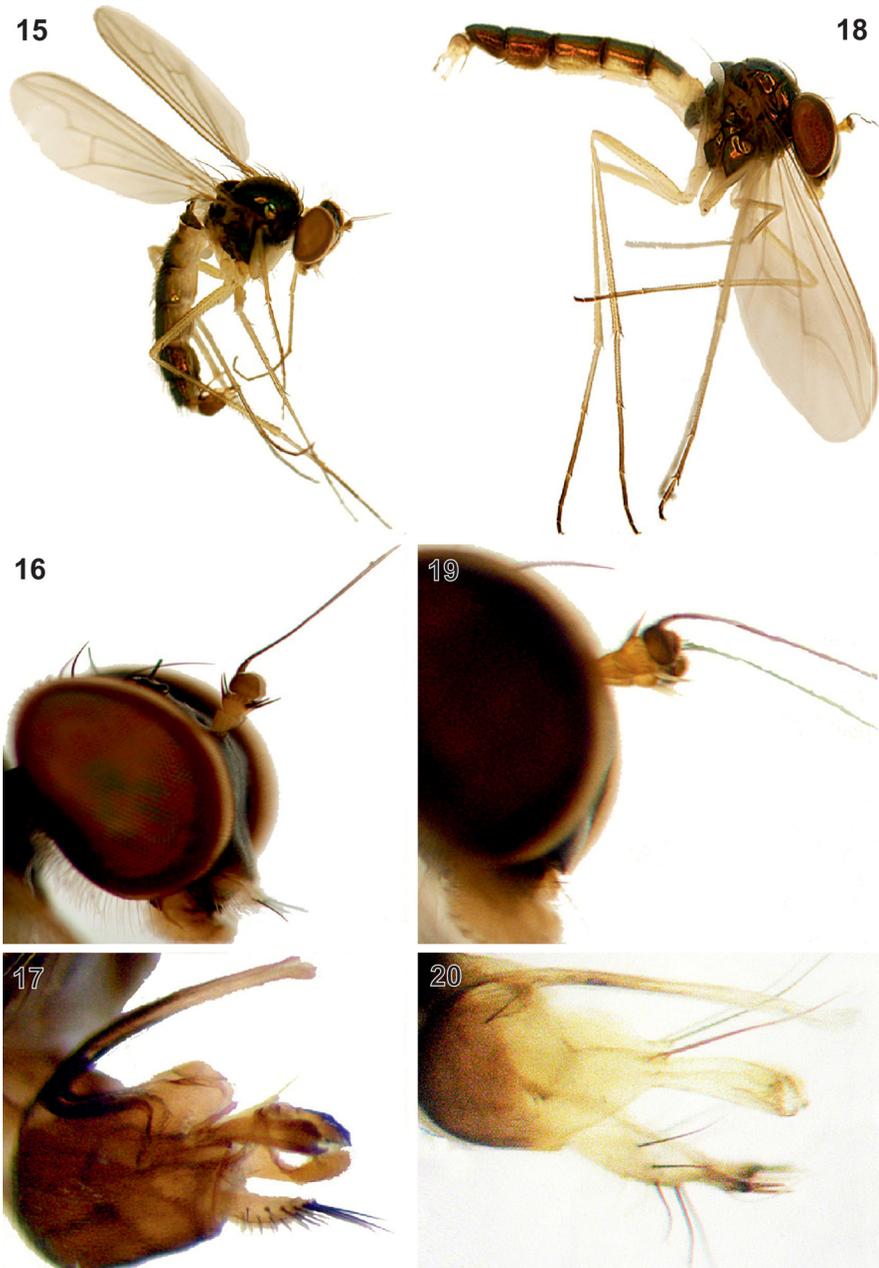
Etymology. This new species is dedicated to Dr. Ali Asghar Talebi (Associate Professor of Tarbiat Modares University), in recognition of his contribution to the knowledge of insects in Iran.

Habitat. The types were collected in temperate rain forests, i.e. broadleaf deciduous forest consisting mainly of beech, hornbeam, oak, maple and alder.

Distribution. Iran, Guilan Province.



Figs 9–14. 9–11 – *Sciapus basilicus* Meuffels & Grootaert, 1990: 9 – male habitus, lateral view; 10 – lateral view of head; 11 – lateral view of hypopygium. 12–14 – *Sciapus heteropygus* Parent, 1926: 12 – male habitus, lateral view; 13 – dorsolateral view of head; 14 – lateral view of hypopygium.



Figs 15–20. 15–17 – *Sciapus iranicus* Grichanov & Negrobov, 2014: 15 – male habitus, lateral view; 16 – lateral view of head; 17 – lateral view of hypopygium. 18–20 – *Sciapus medvedevi* Negrobov & Selivanova, 2009: 18 – male habitus, lateral view; 19 – lateral view of head; 20 – lateral view of hypopygium.

***Sciapus basilicus* Meuffels & Grootaert, 1990**

(Figs 9–11)

Material examined. IRAN: GUILAN: Rudсар, Orkom, 36°45'44.34" N, 50°18'11.88" E, 1201 m a.s.l., 11.x.2010, 5 ♂♂; Rudсар, Ghazichak, 36°45'52.62" N, 50°20'01.08" E, 1787 m a.s.l., 16.viii.2010, 8 ♂♂ 3 ♀♀; 2.viii.2010, 3 ♂♂; 9.viii.2010, 9 ♂♂; 29.viii.2010, 4 ♂♂; 26.ix.2010, 3 ♂♂; 22.viii.2010, 4 ♂♂; 28.vi.2010, 10 ♂♂; 25.vii.2010, 3 ♂♂; Eshmankamachal, 37°22'03.66"N, 49°57'57.84"E, 10 m a.s.l., 07.vi.2010, 6 ♂♂ 4 ♀♀; 19.vii.2010, 3 ♂♂; 25.vii.2010, 2 ♂♂; 16.viii.2010, 1 ♂; Eshmankamachal, 37°21'10.50"N, 49°57'56.16"E, 2 m a.s.l., 7.vi.2010, 5 ♂♂; 19.vii.2010, 2 ♂♂; 2.viii.2010, 3 ♂♂; 18.x.2010, 1 ♂; Rudсар, Ziaz, 36°52'34.44"N, 50°13'17.40"E, 537 m a.s.l., 7.vi.2010, 15 ♂♂; 14.vi.2010, 1 ♂; 28.vi.2010, 5 ♂♂; 25.vii.2010, 4 ♂♂; 17.ix.2010, 7 ♂♂; all material M. Khayrandish leg. (TMUC, ICHMM).

Distribution. Austria, Denmark, Finland, Germany, the Netherlands, Norway, Romania, Sweden, Switzerland, United Kingdom (GRICHANOV 2007, 2014). **New record for Iran.**

***Sciapus heteropygus* Parent, 1926**

(Figs 12–14)

Material examined. IRAN: GUILAN: Rudсар, Orkom, 36°45'44.34" N, 50°18'11.88" E, 1201 m a.s.l., 11.x.2010, 1 ♂, A. Nadimi leg. (ICHMM).

Distribution. Czech Republic, Denmark, France, Germany, Greece, Hungary, Israel, Romania, Slovakia, Spain, Switzerland, Turkey (Muğla province), United Kingdom (GRICHANOV 2007, 2014). **New record for Iran.**

***Sciapus iranicus* Grichanov & Negrobov, 2014**

(Figs 15–17)

Material examined. IRAN: GUILAN: Rudсар, Ziaz, 36°52'34.44"N, 50°13'17.40"E, 537 m a.s.l., 7.vi.2010, 1 ♂, M. Khayrandish leg. (ICHMM).

Distribution. Iran (Tehran – GRICHANOV et al. 2010: 200, *Sciapus* sp.; GRICHANOV & NEGROBOV 2014; Guilan – GRICHANOV & NEGROBOV 2014).

***Sciapus flavicinctus* (Loew, 1857)**

Distribution. Azerbaijan, Bulgaria, Denmark, France, Germany, Greece (incl. Crete), Hungary, Italy, Romania, S Russia (Krasnodar, North Ossetia), Slovakia, Turkey (Adana province) (GRICHANOV 2007, 2014), Iran (East Azarbaijan) (KHAGHANINIA et al. 2013).

***Sciapus medvedevi* Negrobov & Selivanova, 2009**

(Fig. 18–20)

Material examined. IRAN: MAZANDARAN: Noor, Gaznasara, 36°16'58.08" N, 52°10'55.62" E, 2013 m a.s.l., 13.vii.2011, 1 ♂, M. Khayrandish leg. (ICHMM).

Distribution. Armenia (GRICHANOV 2014). **New record for Iran.**

Discussion

Reported species of the genus *Sciapus* have expanded their known distribution in the Caucasian region. *Sciapus medvedevi* has been previously reported only from Armenia, it can be concluded that it is a rare species, restricted to the Caucasian region. *Sciapus basilicus* is found in Asia for the first time. *Sciapus heteropygus* has not been reported from adjacent territories so far. The new species *S. talebii* is probably endemic to northern Iran. *Sciapus iranicus* previously recorded from Tehran (central Iran) and Bandar-e-Anzali (north-eastern Iran: Guilan) (GRICHANOV & NEGROBOV 2014) is here recorded from an additional locality in Guilan and seems to have a more expanded range of its distribution in Iran.

Among the collected species, *S. basilicus* is abundant in the Guilan region, but the other species were found only in small numbers.

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