



<http://dx.doi.org/10.11646/zootaxa.3815.1.4>

<http://zoobank.org/urn:lsid:zoobank.org:pub:85C22FEE-B288-46B9-B090-1CA03A2ACB19>

New species of *Rhamphomyia* (Diptera: Empididae) from Turkey with a key to species of the Middle East and adjacent territories

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Abstract

Rhamphomyia (s. str.) *academica* sp. nov. (Turkey) and *R.* (s. str.) *soukupi* sp. nov. (Turkey) are described and illustrated. *Rhamphomyia* (*Lundstroemiella*) *cimrmani* Barták, 2006, is re-described and the female is newly described. The first records of *Rhamphomyia* (s. str.) *argentata* von Röder, 1887 and *R.* (*Pararhamphomyia*) *intersita* Collin, 1960 are reported from Turkey. A key to species of *Rhamphomyia* from the Middle East is presented.

Key words: *Rhamphomyia*, Empidoidea, Empididae, Diptera, Palearctic Region, Turkey, new species, new records, species key

Introduction

Rhamphomyia Meigen is one of the three megadiverse groups of Empididae, alongside *Empis* Linnaeus and *Hilara* Meigen. Almost 600 species, distributed mostly in the Northern Hemisphere have been described worldwide (Yang *et al.* 2007; Barták & Kubík 2012; Saigusa 2012), but many more await description.

The Empididae fauna of Turkey has been studied recently especially by M.C. Çiftçi and co-workers (Çiftçi & Hasbenli 2007a, 2007b, 2007c; Çiftçi & Hasbenli 2008, 2011, 2013; Çiftçi, Pârvu *et al.* 2008; Çiftçi, Hasbenli *et al.* 2012; Çiftçi, Hasbenli & Koç 2012; Çiftçi, Hasbenli & Özgül 2012) and other scientists (Raffone 2007; Öz 2010).

The genus *Rhamphomyia* is insufficiently known from Turkey with scattered data published previously by Barták (2006), Barták *et al.* (2007), Barták & Kubík (2008, 2009, 2012), and Çiftçi & Hasbenli (2013). Altogether six species of *Rhamphomyia* from Turkey are listed in the above mentioned papers, viz. *R.* (*Lundstroemiella*) *cimrmani* Barták, *R.* (*Megacyttarus*) *crassirostris* (Fallén), *R.* (*Megacyttarus*) *maculipennis* Zetterstedt, *R.* (s. str.) *bohousi* Barták & Kubík, *R.* (s. str.) *karamanensis* Barták *et al.*, and *R.* (*Holoclera*) *tenuipes* Becker. This list is extended herein by two new species and two new records. *Rhamphomyia cimrmani* is re-described and the female of this species is described for the first time. This species was originally described after a single male specimen. Additional findings allowed us to describe the female, to specify broader variation range of male characters and to refine the differences from allied species, *i.e.*, *R. longefilata* Strobl.

Material and methods

The material studied is deposited in the collection of the Czech University of Life Sciences, Prague (CULSP).

Genitalia, together with the preceding 2–3 abdominal segments were removed from the rest of the body using small scissors and macerated in potassium hydroxide solution (approx. 10 %) in small vials submerged in hot water for 1–2 hours. After neutralizing with 8% acetic acid (5 min), the genitalia were dissected in glycerine and

photographed using an Olympus E-410 digital camera mounted on an Olympus BX51 compound microscope. Resulting images were edited with the computer software Quick Foto micro 2.3 provided with deep focus 3.1. Final images were a montage composed usually of 7–15 layers and were further edited with Adobe Photoshop. The morphological terms used here follow Merz & Haenni (2000), Sinclair (2000), and Sinclair & Cumming (2006). All body measurements (including body and setae length) were taken from dry specimens (therefore the actual length may differ from that of fresh or wet-preserved material) by means of an ocular micrometer mounted on a Nikon SMZ 1500 binocular microscope. Abbreviations: M_2/d = length of vein M_2 : greatest length of discal medial cell (discal cell); CuA_1 ratio = length of apical: preapical sections of vein CuA_1 ; lw: ww = greatest length of wing (from basicosta to apex): greatest width of wing. Length of antennal segments = length of first segment (scape): 2nd (pedicel): 3rd (1st flagellomere, =postpedicel): stylus (numbers represent 0.01 mm, i.e. “15” means 0.15 mm). Male body length was measured from antennal base to the tip of genitalia and female body length from base of antennae to the tip of cerci. Thoracic setae are counted on one side of body except scutellars.

Geographical scope of this paper encompasses the Middle East and adjacent territories (= Asian Turkey, Caucasian part of Russia, Georgia, Armenia, Azerbaijan, Lebanon, Syria, Israel, Jordan, Sinai Peninsula, Arabian Peninsula, Iran and Iraq).

Taxonomic account

Rhamphomyia (s. str.) *academica* Barták sp. nov.

(Figs 1–4)

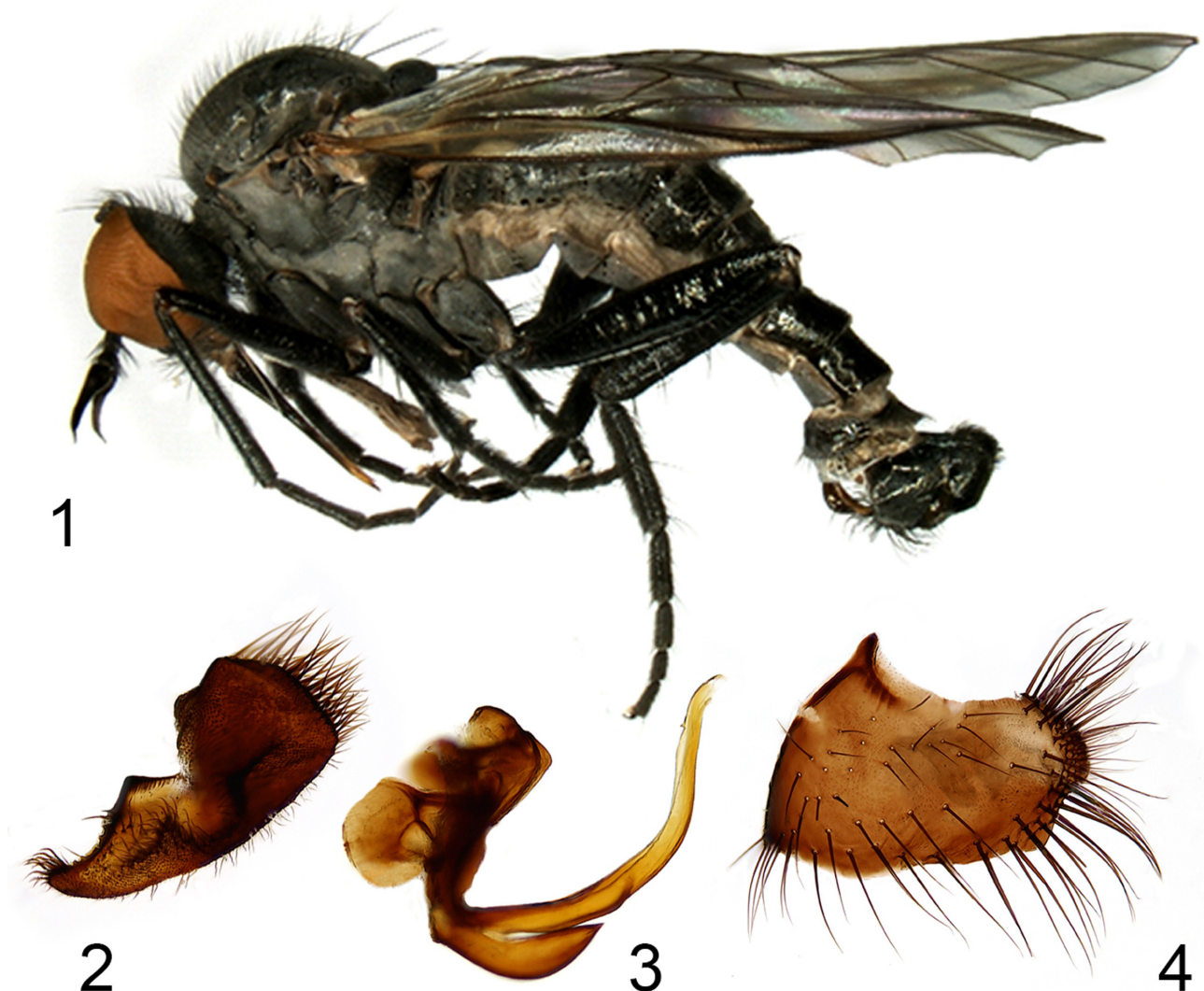
Type material. **HOLOTYPE** ♂, Turkey, Mugla province, Mugla University campus, 710 m, 37°09'39"N, 28°22'20"E, xi.2012–iii.2013 (CULSP). **PARATYPES:** 1♂, same data as holotype; 4♂, 2♀, Mugla University campus, 645 m, 37°09'42"N, 28°22'21"E, 8.vi.2012, O. Dursun leg.; 1♂, Turkey, Isparta province, Kasnak Mesesi NP, 1050 m, 37°45'N, 30°33'E, 5.iii.2007; 1♀ Mugla province, Kavaklidere co., Mentese, 783 m, 37°24'N, 28°37'E, 7.x.2006 – (CULSP).

Diagnosis. Species of the subgenus *Rhamphomyia* s. str. (axillary angle acute, anal vein complete, propleural depression setose) with prosternum bare, acrostichals bi- to multiserial, halter yellow, costal seta absent or very short. Male abdominal tergites partly lustrous and genitalia of *R. tibialis* type.

Etymology. The species is named to honour the Muğla Sitki Koçman University (Turkey), because most type specimens were captured on its beautiful campus.

Description. Male: Head black, grey microtrichose, black setose. Holoptic, facets in dorsal half enlarged. Frons (small triangle above antennae) without setae. Ocellar setae black, half as long as frons. Occiput with dense medium long black setae, postocular row complete in dorsal half, in ventral part distant from eye margin and irregular. Face broad, without setae. Clypeus lustrous. Palpus short, longest setae up to 0.30 mm long. Labrum brown, polished, slightly longer than height of head. Antenna black, both basal segments short setose; length of antennal segments = 13–18: 8–10: 40–50: 10–11. **Thorax** black, rather light grey microtrichose, mesoscutum with three scarcely distinct darker stripes below rows of acrostichals and dorsocentrals, in some specimens with lustrous stripes between rows of setae (rubbish specimens?). All thoracic setae black. Chaetotaxy: proepisternum and propleural depression setose, prosternum without setae; acrostichals irregularly biserial to almost quadriserial (in front part) and short (0.20–0.25 mm, 1.5X longer than distance between rows of acrostichals and dorsocentrals); dorsocentrals equally long, densely spreading out laterad; posthumeral and intrahumeral not differentiated from numerous similar setae; postpronotum with single seta and many shorter setae; notopleuron with 2–3 strong setae and additional smaller and finer setae in front part; supra-alar and prealar regions with several setae similar to those before suture; 1 postalar; 2–3 pairs of scutellars. **Legs:** coxae concolorous with pleura, legs brownish-black, microtrichose, hind femur anteriorly lustrous, black setose. Fore femur with irregular rows of fine antero- and posteroventral setae as long as or slightly longer than width of femur. Fore tibia with very short and fine, apically curled setae ventrally (at most half as long as depth of tibia) and with 1–3 anterodorsals as long as depth of tibia and with irregular row of fine posterodorsal setae 1.5X as long as width of tibia. Mid femur with anteroventral row of stronger setae about 2/3 as long as depth of femur in apical two-thirds but shorter both proximally and distally and with row of slightly longer posteroventrals; dorsal or anterodorsal setae short but slightly longer on basal third.

Mid tibia with short setae ventrally similar to those on mid femur and with 2–3 pairs of dorsal setae of which longest (preapical anterodorsal) up to 0.60 mm long (4X as long as width of tibia). Hind femur slightly swollen in apical third, with short and fine setae dorsally (long about base), with complete row of strong anteroventrals about 2/3 as long as depth of femur and similar row of finer and shorter posteroventrals; ventrally with additional two rows of short spine-like setae in apical third. Hind tibia thin, with distinct “knee”, ventral ciliation very short, anterodorsals and posterodorsals about as long as width of tibia (5–6 in each row); seta in posteroapical comb moderately long. Tarsi of fore and mid legs thin and short setose, basitarsus of hind leg very slightly dilated, all basitarsi ventrally with very short spines. **Wing** clear, veins brownish-black, stigma brown, anal vein complete, axillary angle sharply acute and costal seta absent. Measurements: $M_2/d = 1.5\text{--}1.8$, CuA_1 ratio = 2.7–3.1, $lw:ww = 2.5\text{--}3.1$. Halter yellow, calypter yellow with dark fringes. **Abdomen** blackish-brown, at least tergites 5–7 and sternite 8 lustrous (tergites 2–4 also lustrous in some specimens), remaining parts light grey microtrichose. Lateral setae on tergites 2–4 almost as long as segments, on remaining segments shorter, discal setae very short on dorsal part of tergites 4–7, sternite 1 without setae. Genitalia (Figs 2–4): hypandrium without setae, apical pointed part inserted between slightly developed submedial swellings of phallus; phallus thin, slightly sinuate, epandrium rounded and apically long setose; cercus much higher than long, dorsal part folded inside. Length: body 4.9–6.0 mm, wing 4.9–5.5 mm.



FIGURES 1–4. *Rhamphomyia academica* sp. nov. 1. Male habitus. 2. Cercus. 3. Phallus. 4. Left epandrial lamella.

Female: dichoptic, all facets equal in size, frons broad with several long setae on each side (up to 0.15 mm long). Labrum 1.5 times as long as height of head. Both basal antennal segments with short setae. Mesoscutum similarly setose as in male, but all setae much shorter (acrostichals and dorsocentrals scarcely half as long as

distance between their rows). Fore femur very short setose. Fore tibia short setose, dorsal setae scarcely half as long as depth of tibia. Mid femur with antero- and posteroventrals about one-third as long as depth of femur. Mid tibia with 3 anterodorsals and 1 posterodorsal seta slightly longer than depth of tibia. Shape and setosity of hind legs very similar to male, only anteroventrals on hind femur about 1/3 as long as depth of femur. Basitarsus of hind leg slightly narrower than in male. Wing brownish tinged, measurements: $M_2/d = 1.4-1.6$, CuA_1 ratio = 2.6–2.7, $lw:ww = 2.8-3.0$. Abdomen very light grey microtrichose, lateral parts of tergites 2–3 with setae about half as long as segments, setae on distal segments much shorter, discal setae very short especially on dorsum of tergites. Length: body 5.5–6.1 mm, wing 5.5–5.9 mm.

Remarks. *Rhamphomyia* (s. str.) *academica* sp. nov. is allied to *R. tibialis* Meigen, *R. nitidula* Zetterstedt, and *R. hungarica* Wéber, sharing the following combination of characters: prosternum bare, acrostichals irregularly biserial to multiserial, halter yellow, costal seta absent or very short, posthumeral seta not differentiated from numerous setae covering presutural area of mesoscutum laterad of dorsocentrals, hind femur with strong ventral setae, legs black, and genitalia of *R. tibialis* type (cercus much higher than long, convex dorsally). The newly described species differs from the above mentioned species as follows: male of *R. tibialis* has abdomen more extensively lustrous, even tergites 2–3 are lustrous up to extreme sides and wings are brown, female of this species has short pennate ciliation on flattened hind tibia. *Rhamphomyia hungarica* has similarly “kneed” hind tibia but hind femur is more swollen in both sexes, male has abdomen entirely microtrichose and epandrium with only short setae apically. Both sexes of *R. nitidula* have at least basal abdominal sternites lustrous. Moreover, the newly described species is the only one with dorsally folded cercus.

***Rhamphomyia* (s. str.) *soukupi* Barták sp. nov.**

(Figs 5–8)

Type material. HOLOTYPE ♂, Turkey, Mugla province, Kavaklıdere co., Mentese, 783 m, 37°24'N, 28°37'E, 7.x.2006 (CULSP). PARATYPES: 4♂, 2♀, Turkey, Isparta province, Kasnak Mesesi NP, 1050 m, 37°45'N, 30°33'E, 5.iii.2007 (CULSP).

Diagnosis. Species of the subgenus *Rhamphomyia* s. str. (axillary angle acute, anal vein complete, propleural depression setose) with prosternum bare, acrostichals biserial, halter brown, costal seta absent or very short. Male abdomen silvery, tergites without setae dorsally, palpus extremely long and densely setose.

Etymology. The species is named in honour of our friend Prof. dipl.-Ing. Josef Soukup, PhD who helped us in organising our research of Turkish Diptera.

Description. **Male:** Head brownish-black, grey microtrichose, black setose. Holoptic, facets in dorsal half enlarged. Frons (small triangle above antennae) without setae. Ocellar setae black, subequally as long as postoculars. Occiput with dense, long black setae, postocular row complete, setae very long (about 0.40 mm). Face short and broad, without setae. Clypeus microtrichose. Palpus very long, unusually long and densely setose. Labrum brown, polished, about as long as height of head. Antenna black, both basal segments long setose; length of antennal segments = 15–20: 10–14: 42–45: 9–10. **Thorax** brownish-black, bluish-grey microtrichose, mesoscutum with three somewhat darker and more brownish stripes below rows of acrostichals and dorsocentrals. All thoracic setae black. Chaetotaxy: proepisternum and propleural depression setose, prosternum without setae; acrostichals biserial and very long (up to 0.40 mm, about three times as long as distance between rows of acrostichals and dorsocentrals); dorsocentrals equally long, densely dispersed laterad; posthumeral and intrahumeral scarcely differentiated from numerous similar setae; postpronotum with single seta scarcely differentiated from several similar setae; front part of notopleuron with several setae and hind part with 1–3 only slightly longer and stronger setae; supra-alar and prealar regions with several setae similar to setae anterior to suture; 1 postalar; 2–3 pairs of scutellars. **Legs:** coxae concolorous with pleura, legs brown, black setose. Fore femur with irregular row of anteroventral setae as long as or slightly longer than width of femur and with irregularly arranged posteroventral and posterior setae slightly longer than depth of femur. Fore tibia with short setae ventrally and with irregular setae dorsally up to 3X longer than depth of tibia. Mid femur with anterodorsals, anteroventrals and posteroventrals as long as or slightly longer than width of femur. Mid tibia with short setae ventrally, anterodorsal row consists of setae up to 2X as long as width of tibia and complete posterodorsal row of setae up to 3X as long as width of tibia (up to 0.30 mm). Hind femur with setae dorsally about half as long as width

of femur (slightly longer about base), with complete row of anteroventrals about as long as width of femur and similar row of slightly longer posteroventrals. Hind tibia swollen in apical part (0.25 mm at broadest point), ventral ciliation very short, anterodorsals and posterodorsals about as long as width of tibia; seta in posteroapical comb about 3X longer than setae forming comb. Tarsi of fore and mid legs thin and short setose, basitarsus of mid leg with several setae dorsally 2X longer than width of basitarsus, basitarsus of hind leg swollen (about as broad as hind tibia near apex) and short setose. **Wing** clear, veins brown, stigma brown, anal vein complete, axillary angle acute and costal seta absent or very short. Measurements: $M_2/d = 1.7\text{--}2.2$, CuA_1 ratio = 2.8–3.4, $lw:ww = 2.6\text{--}2.8$. Halter brown, calypter light brown (with darker margin) with dark fringes. **Abdomen** with tergites 2–7 silvery white, remaining parts (sternites, tergites 1 and 8) brown and microtrichose. Tergite 2 with lateral setae about as long as length of segment, tergite 2 with only several lateral setae and distal tergites with only 1–3 lateral setae, discal setae absent from silvery areas, sternite 1 without setae. Genitalia (Figs 5–8): hypandrium without setae, apical pointed part inserted between submedial swellings of phallus; epandrium triangle-shaped, apically setose; cercus exposed, polished, narrow and rather long; phallus apically hooked. Length: body 3.7–4.2 mm, wing 3.6–4.1 mm.



FIGURES 5–8. *Rhamphomyia soukupi* sp. nov. 5. Male habitus. 6. Cercus. 7. Phallus. 8. Left epandrial lamella.

Female: dichoptic, frons broad with 3–5 long setae on each side (up to 0.15 mm long). Occiput with short setae, palpus short and short setose. Both basal antennal segments with short setae. Mesoscutum similarly setose as in male, but all setae much shorter (acrostichals and dorsocentrals scarcely longer than distance between their

rows). Both fore and mid femora with antero- and posteroventral setae slightly shorter than width of femora. Both fore and mid tibiae with setae dorsally about as long as width of tibiae. Hind femur with setae dorsally and ventrally shorter than width of femur, anteroventrals slightly differentiated. Basitarsus of all legs thin and short setose, ventral spine-like setae shorter than depth of basitarsus. Wing brownish tinged, measurements: $M_2/d = 1.6-1.9$, CuA_1 ratio = 2.6–3.0, $lw:ww = 2.6-2.8$. Abdomen brown and entirely microtrichose, dorsal part of tergites almost without setae, only with several very short posteromarginals, lateral parts of tergites 3–4 with setae about 2/3 as long as segment, discal setae shorter. Length: body 3.5 mm, wing 3.8 mm.

Remarks. *Rhamphomyia* (s. str.) *soukupi* **sp. nov.** is allied to *R. siffointei* Barták & Kubík and *R. nubigena* Bezzi. All three species share the following combination of characters: prosternum bare, acrostichals biserial, halter brown, costal seta absent or very short. The combination of very long setose palpus and silvery grey abdomen is unique among males of Palaearctic species of *Rhamphomyia*. Extremely long setose palpus is present in males of several other Palaearctic species of *Rhamphomyia* (e.g., *R. barbipalpis* Frey, *R. grammoptera* Frey, many species of *R. albosegmentata* group); however, silvery coloured abdomen is rare in males. As soon as we know, only males of *R. caucasica* Frey have similarly coloured and setose abdomen; however, this species has yellow halter, shorter palpus and shorter setose palpus and different genitalia (cercus higher than long). Female (among species of *Rhamphomyia* s. str. with absent costal seta, dark halter, multiserial dorsocentrals, microtrichose abdomen and legs without pennate ciliation) is somewhat similar to *R. hovgaardii* Holmgren (however, this species has at least 5 pairs of scutellars) or *R. siffointei* (however, this species has polished clypeus).

***Rhamphomyia* (*Lundstroemiella*) *cimrmani* Barták**

(Figs 9–13)

Rhamphomyia cimrmani Barták, 2006: 504.

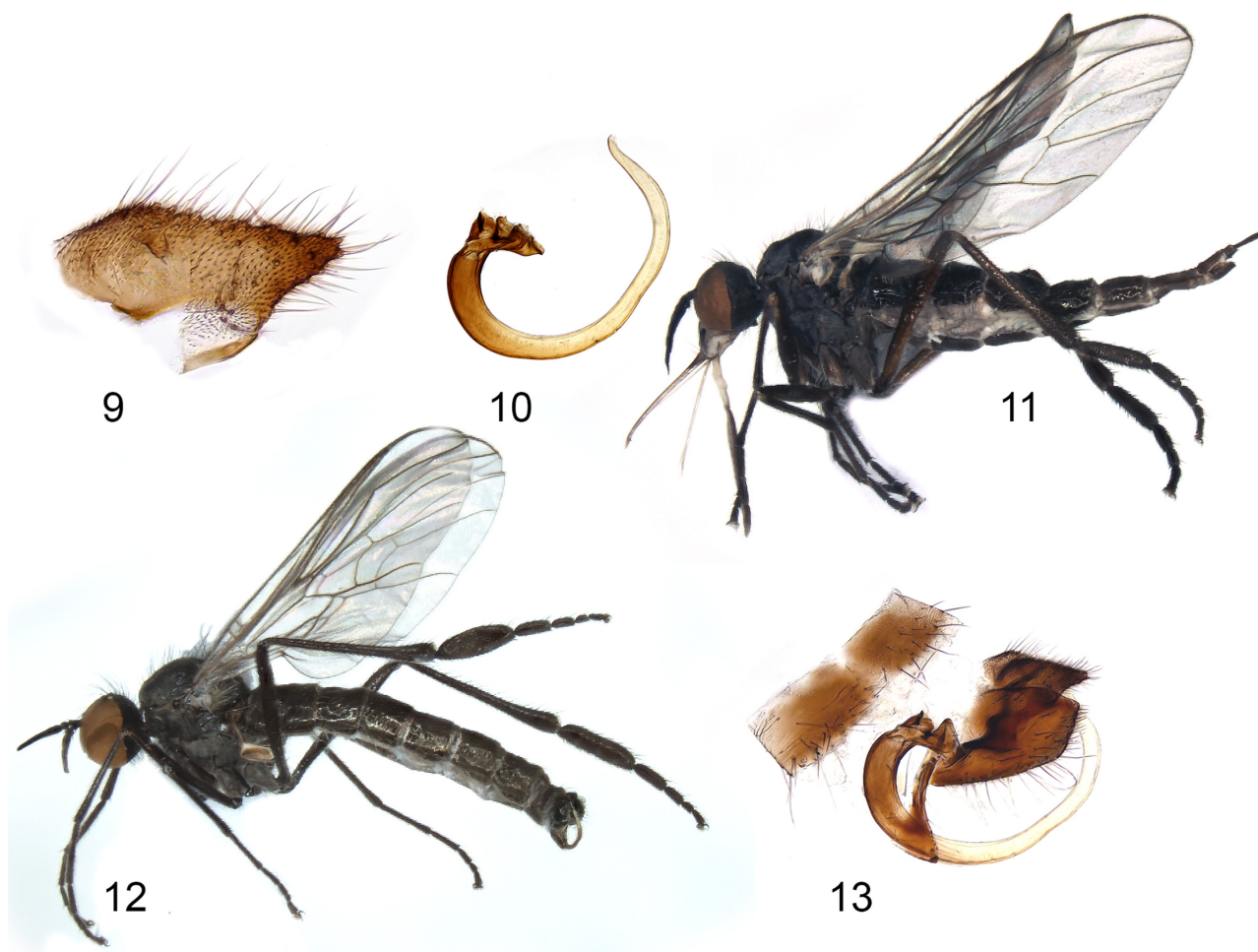
Material examined. 35♂, 18♀, Turkey, Mugla University campus, 710 m, MT, 37°09'39"N, 28°22'20"E, xi.–iii.2013, M. Barták & Š. Kubík leg.

Specification of male characters. Frons with 1–2 pairs of setae on lower part; length of antennal segments = 7–13: 5–8: 46–50: 7–8; 14–18 acrostichals; postpronotum with 0–1 longer (often black) seta and 8–16 pale somewhat shorter setae; notopleuron with pale or dark setae in front part; laterotergite with pale setae or with several black setae intermixed; wing measurements: $M_2/d = 1.3-1.5$, CuA_1 ratio = 2.0–2.4, $lw:ww = 2.8-3.3$; abdominal sternite 1 with several pale setae; hypandrium with 4–7 setulae; length of body 2.9–4.3 mm, wing 3.0–3.8 mm.

Description of female. Face shorter and broader than in male, about 0.15 mm long and 0.12 mm broad ventrally (at broadest point). All facets nearly equal in size. Occiput with somewhat shorter setae than in male. Labrum twice as long as height of head. Thorax as in male, only setae much shorter, both acrostichals and dorsocentrals about 0.10–0.15 mm long (only slightly longer than distance between rows of acrostichals and dorsocentrals). Hind basitarsus 4 times as long as broad. Abdomen more lustrous than in male, tergites 5–6 polished at least on posterior half, also lateral parts of preceding tergites more or less lustrous, first and last three tergites and all sternites microtrichose. Lateral parts of tergites 2–3 with setae about 0.15 mm long, setae on distal segments shorter, dorsum of abdomen with much shorter setae. Length of body 3.9–4.3 mm, wing 3.0–3.4 mm.

Remarks. *Rhamphomyia* (*L.*) *cimrmani* was originally described from a single male specimen. Findings of additional materials enabled us to give more precise specification of male characters including their variations. Female is described here for the first time and images of both male and female including genitalia are added.

There are three species of the subgenus *Lundstroemiella* with microtrichose mesoscutum and long dark mesoscutal setae at least in males, viz. *R. longefilata*, *R. cimrmani* and *R. granadensis* Chvála. The last species differs from both former by broad frons in male and microtrichose abdomen in female (see key in Barták 2006). Differences between males: frons in *R. longefilata* is about as long as broad and lustrous at least in dorsal half but about 2–2.5 times as long as broad and entirely microtrichose in *R. cimrmani*; face in *R. cimrmani* is about as long as frons but twice as long as frons in *R. longefilata*; abdomen in *R. longefilata* is more lustrous and longer setose dorsally than in *R. cimrmani*; *R. longefilata* has hypandrium with at most two short setae and cercus about as long as high, whereas *R. cimrmani* has hypandrium with many setae and cercus about twice as long as high. Female of *R. longefilata* has lustrous frons and *R. cimrmani* entirely microtrichose.



FIGURES 9–13. *Rhamphomyia cimrmani* Barták. 9. Cercus. 10. Phallus. 11. Female habitus 12. male habitus. 13. Male genitalia.

Faunistic records

R. (s. str.) argentata von Röder

Material examined. Turkey: 7♂, 8♀, 11 km E of Mugla, pine wood + meadow, 1310 m, 37°12'45"N, 28°27'42"E, 23.v.2011, M. Barták & Š. Kubík leg.

Remarks. Broadly distributed species in temperate and southern Europe, common in higher altitudes of its southern range but uncommon in Central Europe. First record for Turkey.

R. (s. str.) karamanensis Barták *et al.*

Material examined. Turkey: 1♂, Isparta province, Kasnak Mesesi NP, 1050 m, 37°45'N, 30°33'E, 5.iii.2007.

Remarks. The second record for Turkey (after types).

R. (Pararhamphomyia) intersita Collin

Material examined. Turkey: 14♂, 13♀, Mugla University campus, 710 m, MT, 37°09'39"N, 28°22'20"E, xi.–iii.2013, M. Barták & Š. Kubík leg.

Remarks. Species up to now known only from Israel. First record for Turkey.

***R. (Holoclera) tenuipes* Becker**

Material examined. Turkey: 4♂, Akyaka, pasture, 28.iv.–8.v.2013, 6 m, 37°03'19"N, 28°20'07"E, M. Barták & Š. Kubík leg, YPWT + SW; 1♂, 1♀, Mugla prov., Karabagiar plateau, 620 m, 37°10.728'N, 28°23.617'E, 24.iv.2007; 1♂, Turkey, Akyaka, forest, 30 m, SW, 37°03'16"N, 28°19'35"E, M. Barták & Š. Kubík leg, 30.iv.–9.v.2013; 1♂, Mugla prov., Kavaklidere co., Mentese, 7.x.2006, 783 m.

Remarks. Broadly distributed across South Mediterranean province from Canary Islands to Israel. This species was previously recorded from Turkey by Barták & Kubík (2009).

Unnamed species

R. (Holoclera) sp. 1 and 2 were under the same notations introduced by Barták & Kubík (2012). No additional material of this undescribed species was found.

R. (Megacyttarus) sp. 3: One male from Turkey (illegible locality) rather damaged, apparently an undescribed species (the only species of *Megacyttarus* with a single outgoing loop on phallus), but the material on hand does not allow describing it.

Key to species of *Rhamphomyia* of the Middle East and adjacent territories

Note: "additional characters" are included to distinguish from other species eventually found occurring in the target area.

1	Acrostichal setae absent	2
-	Acrostichal setae present	8
2(1)	One long seta in posteroapical comb on hind tibia. Fore femur without spine-like anterior setae. Anal vein complete (Caucasus; genitalia illustrated by Barták & Kubík 2012, figs 5, 6)	<i>R. (Holoclera) subvariabilis</i> Barták & Kubík
-	Seta in posteroapical comb on hind tibia very short or absent. Fore femur with row (often irregular) of short spine-like anterior setae. Anal vein incomplete	3
3(2)	Dorsocentral setae 2–3 serial (Israel; genitalia illustrated by Barták & Kubík 2009, figs 8–10)	<i>R. (Holoclera) biserialis</i> Collin
-	Dorsocentral setae uniserial	4
4(3)	Males [unknown male of <i>R. (Holoclera)</i> sp. 1 may belong here, probably with lustrous mesoscutum]	5
-	Females	6
5(4)	Cercus long, exceeding epandrium, with very long setae dorsally (South Mediterranean: from Canary Islands, across North Africa, Cyprus, Israel to Turkey; genitalia illustrated by Barták & Kubík 2009, figs 6, 7)	<i>R. (Holoclera) tenuipes</i> Becker (♂)
-	Cercus shorter than epandrium, with short setae. (Additional characters: cercus deeply concave; both epandrium and hypandrium with short setae) (Turkey; genitalia illustrated by Barták & Kubík 2009, fig. 8)	<i>R. (Holoclera) sp. 2</i> (♂)
6(5)	Mesoscutum lustrous, with two narrow microtrichose stripes below dorsocentrals and somewhat broader median stripe. Abdominal segments 2–5 almost without microtrichosity. (Additional characters: supra-alar seta absent, fore coxa yellow) (Turkey)	<i>R. (Holoclera) sp. 1</i> (♀)
-	Mesoscutum uniformly microtrichose. Abdominal segments 2–5 at least partly microtrichose	7
7(6)	Hind femur without long anteroventral seta. Anterior spines on fore femur shorter than 0.02 mm ...	<i>R. (Holoclera) sp. 2</i> (♀)
-	Hind femur with or without long preapical anteroventral seta. Anterior spines on fore femur up to 0.03 mm	<i>R. (Holoclera) tenuipes</i> (♀)
8(1)	Prosternum with setae	9
-	Prosternum without setae	14
9(8)	Labrum very long, at least 1.5X longer than height of head. Male genitalia of <i>R. tibialis</i> type. (Additional characters: male tergites 6–7 at least partly polished, rest of abdomen pruinose. Female mid femur on both sides and mid tibia, hind femur and hind tibia dorsally with short pennate ciliation) (Turkey; genitalia illustrated by Barták & Kubík 2008, figs 1, 2)	<i>R. (s. str.) bohousi</i> Barták & Kubík
-	Labrum shorter. Genitalia of different shape	10
10(9)	Males	11
-	Females (females of <i>R. teberdana</i> unknown). (Additional characters: abdominal tergite 3 almost bare, at most with minute setulae)	13
11(10)	Cercus without rounded processes when viewed posteriorly. Abdomen entirely microtrichose (Caucasus; genitalia illustrated by Barták & Syrovátka 1983, fig. 11)	<i>R. (s. str.) teberdana</i> Barták (♂)

-	Cercus with two rounded processes when viewed posteriorly. At least abdominal tergite 3 lustrous up to extreme lateral margin	12
12(11)	Both processes of cercus equal in size and shape (Palearctic; genitalia illustrated by Barták 1982, fig. 1g)	<i>R. (s. str.) sulcata</i> Meigen (♂)
-	Both processes of cercus unequal, the lower one smaller than the upper one (Western Palearctic; genitalia illustrated by Barták 1982, fig. 1f – as <i>R. sulcatina</i>)	<i>R. (s. str.) trilineata</i> Zetterstedt (♂)
13(10)	Acrostichals almost regularly biserial. Hind tibia not swollen or dilated (oval in cross-section)	<i>R. (s. str.) trilineata</i> (♀)
-	Acrostichals multiserial. Hind tibia distinctly swollen and dilated (biconcave in cross-section)	<i>R. (s. str.) sulcata</i> (♀)
14(8)	Propleural depression setose; axillary angle acute (less than 70°); anal vein complete. All species with more than biserial acrostichals belong here as well as all species without costal seta	15
-	At least one of the three characters above different. Acrostichals always regularly biserial, costal seta always at least 2X longer than costal ciliation. All species with body at least partly pale (white to brownish-yellow) setose belong here	29
15(14)	Halter dark (brown to black)	16
-	Halter yellow	19
16(15)	Costa seta absent	17
-	Costal seta long (♀ of <i>R. hermonensis</i> unknown)	18
17(16)	Male palpus very long with extremely long setae. Female abdomen brown	<i>R. (s. str.) soukupi</i> sp. nov.
-	Male palpus short and short setose. Female abdominal tergites 3–6 silvery-grey (temperate and southern parts of Western Palearctic; genitalia illustrated by Barták 1982, fig. 3c)	<i>R. (s. str.) argentata</i> von Röder
18(16)	Abdomen sublustrous. Mid femur along its length and hind femur in apical half with very short anteroventral setae, about half as long as width of femur; mid tibia lustrous dorsally (Israel; genitalia illustrated by Barták & Kubík 2009, figs 4–5)	<i>R. (s. str.) hermonensis</i> Barták & Kubík
-	Abdomen microtrichose. Both middle and hind femora with anteroventral setae at least as long as width of femur; mid tibia microtrichose dorsally (Caucasus; genitalia illustrated by Barták & Syrovátka 1983, fig. 13)	<i>R. (s. str.) azauensis</i> Barták
19(15)	Male	20
-	Female (females of <i>R. iranica</i> , <i>R. dombai</i> , and <i>R. caucasica</i> unknown)	26
20(19)	Hind femur without strong setae ventrally. Cercus with submedian rounded process (Turkey; genitalia illustrated by Barták et al. 2007, figs 1–4)	<i>R. (s. str.) karamanensis</i> Barták et al. (♂)
-	Hind femur with strong setae ventrally at least on basal third of femur. Cercus without submedian process	21
21(20)	Phallus broadened apically (Israel; genitalia illustrated by Barták & Kubík 2009, figs 1–3)	<i>R. (s. str.) furmani</i> Barták & Kubík (♂)
-	Phallus narrow apically	22
22(21)	Abdomen silvery-grey (Caucasus)	<i>R. (s. str.) caucasica</i> Frey (♂)
-	Abdomen brown to black	23
23(22)	Cercus narrow, about twice as long as wide and much narrower than epandrium (Iran; genitalia illustrated by Barták & Kubík 2008, figs 6, 7)	<i>R. (s. str.) iranica</i> Barták & Kubík (♂)
-	Cercus at least as wide as long and at least as wide as epandrium	24
24(23)	Hind tibia with distinct “knee”. Hind femur slightly swollen, 2X broader than hind tibia (Turkey)	<i>R. (s. str.) academica</i> sp. nov. (♂)
-	Hind tibia without “knee”. Hind femur not swollen	25
25(24)	Hind femur lustrous anteriorly. Hypandrium narrowed apically (Temperate and South parts of Western Palearctic; genitalia illustrated by Barták 1982, fig. 3a)	<i>R. (s. str.) tibialis</i> Meigen (♂)
-	Hind femur microtrichose anteriorly. Hypandrium slightly broadened apically (Caucasus; genitalia illustrated by Barták & Syrovátka 1983, fig. 14)	<i>R. (s. str.) dombai</i> Barták (♂)
26(19)	Hind femur swollen and flattened, with dense short subpennate ciliation dorsally	<i>R. (s. str.) tibialis</i> Meigen (♀)
-	Hind femur not swollen, with ordinary setae dorsally	27
27(26)	Hind femur without strong setae ventrally	<i>R. (s. str.) karamanensis</i> (♀)
-	Hind femur with strong setae ventrally	28
28(27)	Mid tibia with distinct “knee”. Larger species (wing length more than 5.5 mm)	<i>R. (s. str.) academica</i> (♀)
-	Mid tibia without “knee”. Smaller species (wing length about 3 mm)	<i>R. (s. str.) furmani</i> (♀)
29(14)	Male cercus trilobate; eyes separated on frons. Female: cell dm elongated to wing margin or wing with dark spots (female of <i>R. tuberifemur</i> and <i>R. kovalevi</i> unknown)	30
-	Male cercus simple; eyes separated or meet on frons. Female: cell dm not elongated and wing without dark spots	36
30(29)	Male. (Additional character: dorsal lobe of cercus forms an expansion protruding anteriorly above abdomen, covering at least the last tergite)	31
-	Female	35
31(30)	Phallus forms 1–2 outgoing loops	32
-	Phallus without outgoing loops	34
32(31)	Phallus forms single loop (female unknown) (Turkey)	<i>R. (Megacyttarus) sp. 3</i> ♂
-	Phallus forms two loops	33
33(32)	Mid basitarsus with short setae dorsally (Europe, Turkey; genitalia illustrated by Barták 1982, fig. 5b)	<i>R. (Megacyttarus) crassirostris</i> (Fallén) (♂)
-	Mid basitarsus with 3–5 setae dorsally at least as long as basitarsus (Europe, Turkey; genitalia illustrated by Collin 1961, figs 114, 115)	<i>R. (Megacyttarus) maculipennis</i> Zetterstedt (♂)

- 34(31) Face narrow (0.04 mm at midlength), narrower than front ocellus. Both laterotergite and abdomen dark setose (Caucasus; genitalia illustrated by Barták 2004, figs 1 a–d) **R. (*Megacyttarus*) *kovalevi* Barták** (♂)
- Face broader (at least 0.10 mm at midlength). Both abdomen and laterotergite at least partly pale setose. (Additional characters: apical part of hind tibia with dorsal setae which are about 3/4 as long as the length of hind basitarsus. Ventral setae on hind basitarsus shorter than its diameter. Basitarsus of mid leg short setose dorsally) (Georgia; genitalia illustrated by Barták 2004, figs 3 a–d) **R. (*Megacyttarus*) *tuberifemur* Barták** (♂)
- 35(30) Cell dm not elongated to wing margin; wing with two dark spots **R. (*Megacyttarus*) *maculipennis*** (♀)
- Cell dm elongated nearly to wing margin; wing without dark spots **R. (*Megacyttarus*) *crassirostris*** (♀)
- 36(29) Mesoscutum lustrous, devoid of microtrichosity. (Additional characters: occiput entirely microtrichose, cercus narrower than epandrium) (Temperate and South Europe, Caucasus; genitalia illustrated by Barták 1985, fig 10 b) **R. (*Lundstroemiella*) *kerteszi* Oldenberg**
- Mesoscutum microtrichose 37
- 37(36) Body entirely black setose. (Additional characters: phallus broadened apically as in species of *R. albosegmentata*-group) (Caucasus, female unknown; genitalia illustrated by Barták & Syrovátka 1983, figs 12, 15) **R. (s. str.) *drahomirae* Barták**
- Body at least partly pale (whitish-yellow) setose 38
- 38 (37) Hind basitarsus narrow. Male eyes contiguous on frons (Israel, Turkey; genitalia illustrated by Barták & Kubík 2009, figs 11, 12) **R. (*Pararhamphomyia*) *intersita* Collin**
- Hind basitarsus swollen. Male eyes separated on frons (Turkey) **R. (*Lundstroemiella*) *cimrmani* Barták**

Acknowledgements

This paper was supported by S grant of MSMT (Ministry of Education, Sports and Youth of Czech Republic). Two anonymous reviewers provided valuable comments on an earlier draft.

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