BioOne COMPLETE

First Record of the Genus Adoxomyia(Diptera: Stratiomyidae) with Four Species from Turkey

Authors: Üstüner, Turgay, and Hasbenli, Abdullah

Source: Florida Entomologist, 94(1) : 64-70

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.094.0109

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use

FIRST RECORD OF THE GENUS *ADOXOMYIA* (DIPTERA: STRATIOMYIDAE) WITH FOUR SPECIES FROM TURKEY

TURGAY ÜSTÜNER[1] AND ABDULLAH HASBENLİ[2]
[1]Selçuk University, Faculty of Science, Department of Biology, Alaaddin Keykubat Kampüsü, 42100 Selçuklu, Konya, Turkey
E-mail: turgayustuner@gmail.com

[2]Gazi University, Faculty of Arts and Sciences, Department of Biology, 06500 Teknikokullar, Ankara, Turkey.

ABSTRACT

Adoxomyia aureovittata (Bigot, 1879), *A. cinerascens* (Loew, 1873), *A. obscuripennis* (Loew, 1873) and *A. sarudnyi* (Pleske, 1903) are recorded from Turkey for the first time. Both sexes of the first 3 species and the male of *A. sarudnyi* are redescribed and photographs of all species are provided. The distributions of all species are briefly discussed. The male genitalia and some other diagnostic characters of all the examined species are illustrated. An identification key to all East-Mediterranean species was constructed and is included in this report.

Key Words: *Adoxomyia aureovittata, A. cinerascens, A. obscuripennis, A. sarudnyi,* new records, distribution, Turkey

RESUMEN

Se registran por primera vez *Adoxomyia aureovittata* (Bigot, 1879), *A. cinerascens* (Loew, 1873), *A. obscuripennis* (Loew, 1873) y *A. sarudnyi* (Pleske, 1903) para Turquia. Se proveen redescripciones y fotos de ambos sexos de las primeras 3 especies y del macho de *A. sarudnyi*. Se discutan la distribución de todas las especies. Se ilustran las genitalias de los machos y algunas de las caracteristicas diagnósticas de las especies examinadas. Una clave para la identificación de todas las especies de la región Este del Mediterráneo es incluida.

The family Stratiomyidae belongs to the suborder Brachycera in Diptera (Rozkosny 1982). This large family includes more than 2650 species in 375 genera composed of 12 subfamilies worldwide of which 426 species in 55 genera in 7 subfamilies occur in the Palaearctic region (Woodley 2001). So far 48 species in 14 genera and 7 subfamilies (*Beridinae*, *Pachygastrinae*, *Clitellariinae*, *Hermetina*e, *Sarginae*, *Stratiomyinae*, *Nemotelinae*) have been recorded in Turkey (Rozkosny & Nartshuk 1988; Woodley 2001; Üstüner et al. 2002, 2003; Üstüner & Hasbenli 2003, 2004).

The subfamily Clitellariinae contains 50 genera worldwide, 10 genera in the Palaearctic region and 1 genus (*Pycnomalla*) in Turkey (Woodley 2001; Üstüner et al. 2002). The genus *Adoxomyia* (Kertész, 1907) belongs to the subfamily Clitellariinae and includes 36 described species. They are distributed in the Palaearctic region (16 species), the Nearctic region (13 species), the Neotropical region (4 species), the Oriental region (3 species) and the Afrotropical region (2 species) (Woodley 2001; Hauser 2002; Nartshuk 2004). Palearctic species of *Adoxomyia* are found mainly in south-eastern Europe, Transcaucasus, Near East, Central Asia and China (Rozkosny 1983; Rozkosny & Nartshuk 1988; Nartshuk 2004). *Adoxomyia* had not been recorded in Turkey before this report.

The larvae of *Adoxomyia* are known only for some Nearctic and one Oriental species; they were found in decaying cacti and nests of pack rats (*Neotoma* sp.) (McFadden 1967; James & McFadden 1969).

In addition to the 4 species recorded in Turkey at least 5 additional species may occur here. *A. dahlii* (Meigen 1830) is known from southern Europe (incl. Ukraine), Armenia and Israel. *A. ruficornis* (Loew 1873) occurs in Azerbaijan, Iran and Kyrgyzstan. *A. hermonensis* Lidner, 1975 and *A. paleastinensis* Lindner, 1937 were described from Israel and *A. transcaucasica* Nartshuk, 2004 is based on types from Armenia and Azerbaijan. According to a recent paper by Nartshuk (2004), *A. portschinskii* (Pleske) is a mere synonym of *A. dahlii* (Meigen).

MATERIALS

A total of 16 specimens (12 males and 4 females) were collected by hand net at Antalya, Isparta, and Konya in Turkey between 1999 and 2001. Some specimens of *Adoxomyia* were caught sunbathing on stones or on the ground in dry creek beds. The specimens are deposited in the collection of the Selçuk University Department of Biology in Konya, Turkey. The fact that previously the genus *Adoxomyia* had not been recorded from Turkey reflects the poor knowledge of the Turkish Stratiomyidae fauna.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use

THE GENUS *ADOXOMYIA* Kertész 1907

The generic name *Adoxomyia* was proposed by Kertész (1907) and according to the catalog publishad a year later (Kertész 1908) this genus embraced 23 species. In 1923, Kertész tried to establish a new separate genus, *Euclitellaria* Kertész, but it was not accepted by Pleske (1925) and subsequent authors. The last comprehensive key to the Palaearctic species is that by Lindner (1937), who followed Pleske's concept of *Adoxomyia* in a broad sense. Besides the work by Rozkosny (1983), which treated the European species, some other relevant papers were chiefly devoted to descriptions of separate additional species (Ôuchi 1938; Dusek & Rozkosny 1963; Lindner 1975; Nartshuk 2004).

In Turkey, the species belonging to *Adoxomyia* are mid-sized (6-11 mm) with a predominantly black body. The eyes, which are contiguous in males and widely separated in females, are covered with dense hairs. The antennae are relatively long, predominantly black, but can be red-orange to dark brown in some species. Scape and pedicel are of equal length. The flagellum consists of 8 flagellomeres. No thoracic spines but two scutellar spines are present. All of 4 M-veins reach the wing margin.

KEY TO THE EAST MEDITERRANEAN SPECIES OF *ADOXOMYIA*

The following key is based partly on Lindner (1937). The male of *A. hermonensis* and the female of *A. palaestinensis* are unknown.

1. Legs completely black 2

— Legs bicoloured or mainly **5**

2. Antenna entirely black. 3

— At least basal half of antennal flagellum red. . . . . *A. ruficornis* (Loew 1873)

3. Scutellar spines short, slender and bare, basal 3-4 flagellomeres in female unusually broad 4

— Femora - Scutellar spines longer, thickened and haired, basal 3-4 flagellomeres not as broad (Figs. 19 and 20) . . . . . .*A. obscuripennis* (Loew 1873)

4. Female eyes black haired, postocular band wider than scape is long; male unknown . . . . . *hermonensis* Lindner 1975

— Female eyes white haired, postocular band as wide as scape is long . . . . . *A. transcaucasica* Nartshuk 2004

5. Legs entirely yellow . . . . . .*A. sarudnyi* (Pleske 1903)

— At least femora black. 6

6. Antenna black. 7

- Abdomen with silverish white hair patches . . . . . *A. palaestinensis* Lindner 193° ♂

8. Abdomen with golden yellow hair patches . . . . . .*A. aureovittata* (Bigot 1879) ♀

— Abdomen with silverish white (rarely coppery) hair patches 9

9. Male flagellum almost cylindrical, female apical flagellomere at base half as broad as scape at distal end . . . . . *A. dahlii* (Meigen 1830)

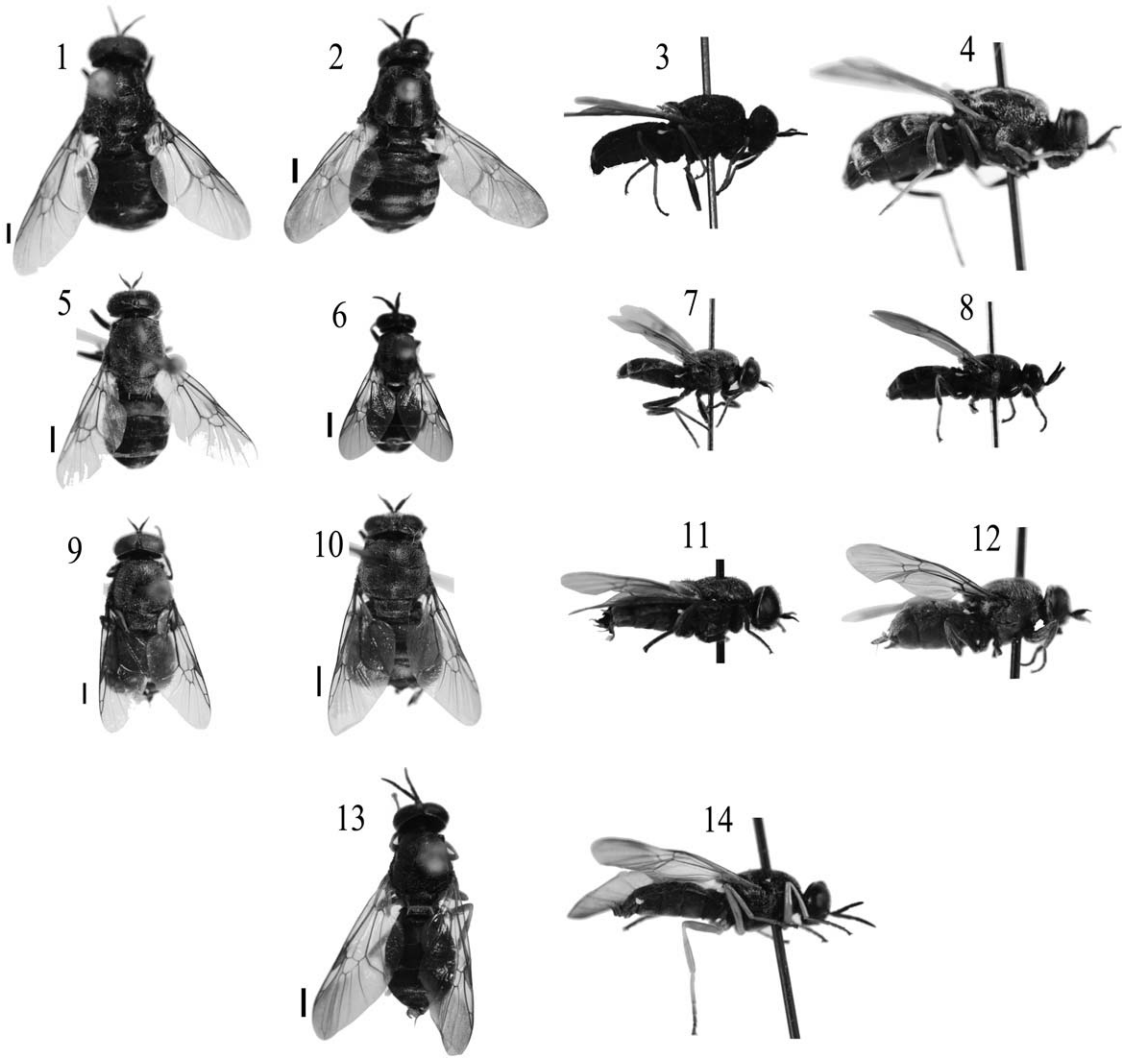
— Male flagellum distinctly swollen in middle, female apical flagellomere broader, at most slightly narrower than scape at distal margin (Figs. 17 and 18) . . . . . .*A. cinerascens* (Loew 1873)

Redescription of the 4 *Adoxomyia* species recorded in Turkey

1. *Adoxomyia aureovittata* (Bigot 1879);
see Figs. 1-4, 15-16 and 22-23.

Male: Head transversely oval, in dorsal view. Eyes touching on frons. Hairs on eyes as long as pedicel, dense and black. Black postocular area swollen in lower half and narrowed in upper part, covered with appressed yellowish hairs. Face, cheeks and posteroventral part of head covered with hairs as long as scape, erect, black and partly brown. Antenna entirely black and more slender in male than in female. Scape and pedicel black with black and erect hairs being as long as scape. Flagellum about four times as long as scape and pedicel combined, the first 5 flagellomeres with dense yellowish pubescence. Scutum black, with semi-erect and black hairs. Scutellum

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use



Figs. 1-14. *Adoxomyia aureovittata*: 1- male in dorsal view, 2- female in dorsal view, 3- male in lateral view, 4- female in lateral view; 5-8 *Adoxomyia cineracens* 5- male in dorsal view, 6- female in dorsal view, 7- male in lateral view, 8- female in lateral view; 9-12 *Adoxomyia obscuripennis* 9- male in dorsal view, 10- female in dorsal view, 11- male in lateral view, 12- female in lateral view; 13-14. *Adoxomyia sarudnyi* 13- male in dorsal view, 14- male in lateral view (Scale 1 mm).

and scutellar spines mainly black but tip of scutellar spines brown. Scutellum covered with semi-appressed sparse black hairs. Legs black and yellow. Coxa, trochanter, and femur black except for yellow bases of femora. Tibia mainly black, its both ends narrowly yellowish brown. Tarsi yellow, front tarsus darkened dorsally as well as tarsomeres 3-5 of mid and hind legs. Coxa, trochanter, and femur with semi-erect black hairs. Tibia covered with appressed yellowish hairs. Tarsi with appressed golden yellowish hairs. Abdomen entirely black, abdominal pile black except for golden yellow lateral markings on tergite 4 and a transverse, golden yellow band on tergite 5.

Female: Eyes densely black haired, hairs only one-fourth as long as pedicel. Black postocular area approximately as wide as fore tibia and covered with appressed yellowish hairs. Frons about 1/3 of head width, with fine longitudinal groove in middle, black, densely punctate, with yellowish hairs. Face black, with yellowish hairs on sides below antennae. Remainder of face, cheeks and posteroventral part of head covered with erect, black hairs being as long as scape. Antenna in-

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use

serted at middle of head profile, partly black. Scape black but reddish brown at tip. Pedicel and first 5 flagellomeres dark red, last 3 flagellomeres black. Scape and pedicel with erect, black hairs as long as antenal scape. Flagellum about 4.5 times as long as both basal antennal segments combined, first 5 flagellomeres densely golden yellow dusted. Thorax black, scutum with 2 golden yellow dusted longitudinal stripes which can be reduced to absent in some specimens (especially smaller ones). Scutellum black with appressed golden yellow hairs. Tips of scutellar spines brown. Legs black and yellow, femora black except for yellow base, tibiae mainly darkened, with both ends broadly yellowish brown on fore and mid legs. Hind tibia mainly black, with both ends broadly yellowish brown. Tarsi yellow, with dorsally darkened tarsomeres 3-5.

All legs with yellowish hairs that are semi-erect on femora and appressed on tibiae and tarsi. Abdomen black but lateral markings on tergites 2-4 and a triangular apical spot on tergite 5 with golden yellow hair patches.

Adoxomyia aureovittata (Bigot 1879) was described from an unknown locality. Apparently, this species is distributed in the eastern part of the Mediterranean area. In addition to Turkey it was also found in Greece (M. Hauser, personal communication).

Material Examined: Turkey: Konya, Hadim, between Tosmur and Gevne Village, Gevne Valley, 1450-2020 m, 10 June 1999, 1 male and 1 female; Konya, Taskent, Begreli Village, Gevne Valley, 1570 m, 10 August 2001, 1 male; all T. Üstüner leg.

Distribution: Greece, Turkey.

2. *Adoxomyia cinerascens* (Loew 1873); see Figs 5-8, 17-18 and 24-25.

Male: Hairs above compound eyes as long as pedicel, densely black. Postocular area black, covered with pale yellowish, appressed hairs. Frontal triangle black with dense, erect, pale yellowish hairs being about 1.5 times as long as the scape. Hairs on black face erect, as long as pedicel, pale yellowish. Antenna as long as head in lateral view. Scape, pedicel and first 3 basal flagellomeres brownish orange, rest of flagellum black. Hairs on scape and pedicel erect, as long as scape, pale yellowish. Thorax including scutellum black, with dense yellowish hairs. Scutellar spines yellow. Wing veins brown. Legs bicoloured, coxae black, trochanters brownish, femora and tibiae mainly black, partly yellow at tips. Fore and hind tarsi yellowish on inner surface and darkened on outer surface, mid tarsi yellow but basal 2 tarsomeres darkened on outer surface. Femora with sparse semi-erect pale yellow hairs. Tibiae and tarsomeres with dense appressed yellow hairs. Abdomen mainly black, with transverse, pale yellow hair band on posterior margin of tergite 4.

Female: Hairs on eyes black, about 0.3 times as long as pedicel. Postocular area black, covered with pale yellow and semi-appressed hairs. Frons about 0.3 of head-width, shining black and densely punctate, with fine longitudinal groove in middle and with sparse pale yellow hairs. Face black, with whitish, dense, erect hairs being as long as pedicel. Antenna long, about 1.5 times as long as head in lateral view, bicolored and in male more slender than in female. Scape brownish orange on lower surface but darkened on upper surface. Pedicel and first 3 flagellomeres brownish orange, rest of flagellum black. Flagellomeres 2-3 darkened on outer surface. Thorax black, with appressed dense pale yellow hairs, but tip of postpronotal callus brownish. Scutellum black with pale yellow hairs, scutellar spines yellow. Wing veins brown. Legs bicoloured. Coxae black, trochanters yellow. Femora and tibiae mainly black and partly yellow on tips. Fore and hind tarsi yellowish on inner surface, darkened on outer surface, basal 2 tarsomeres of mid tarsi yellow, other tarsomeres darkened on outer surface. Femora with semi-erect pale yellow hairs. Tibiae with appressed yellowish hairs. Tarsomeres with appressed yellow hairs. Abdomen mainly black but with pale yellow hair patches at posterior margin of tergite 4.

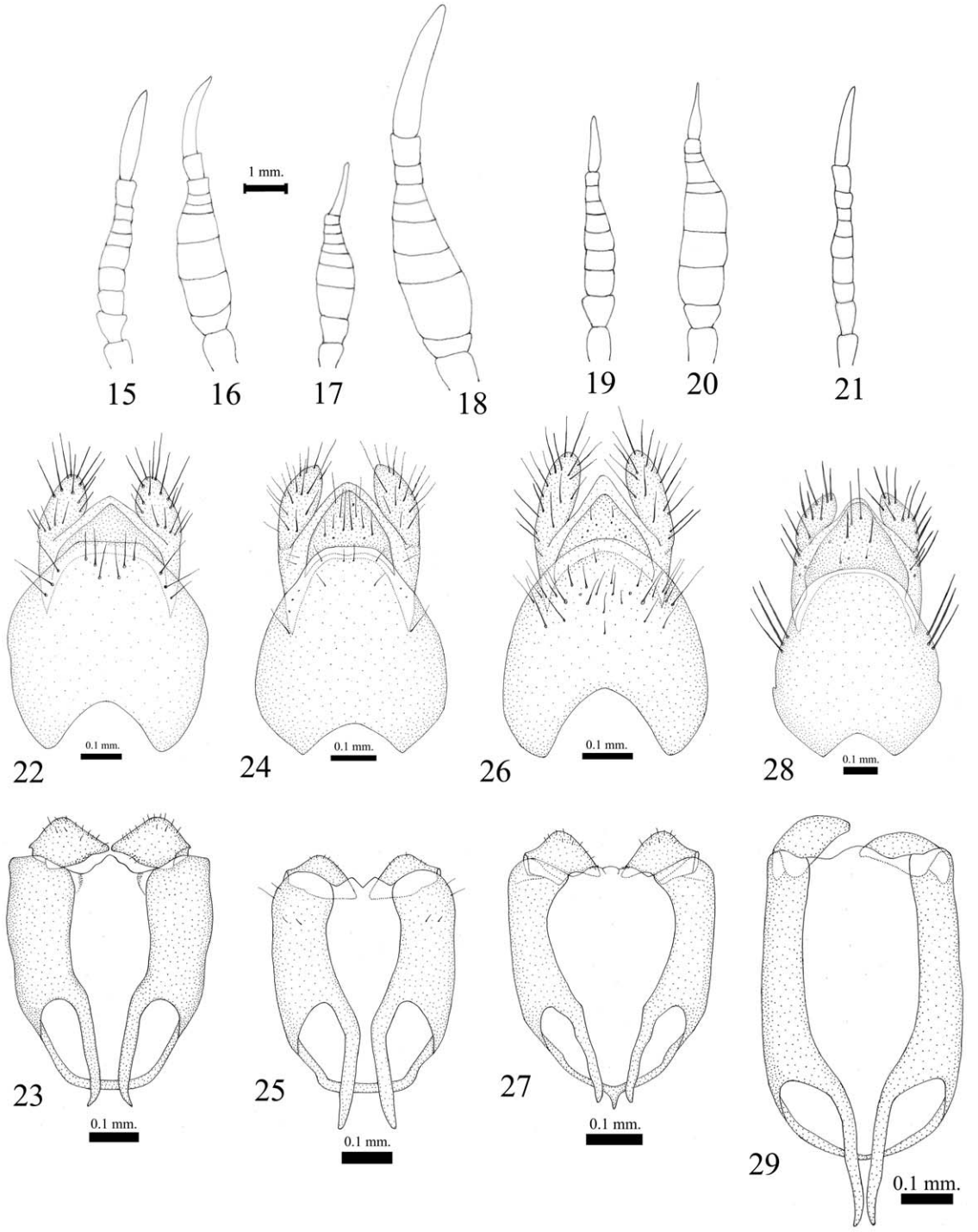
Material Examined: Turkey: Antalya, Gündogmus district, Güneycik Village, Topraktepe place, elev. 200 m, 23 June 1999, 7 males, 12 July 2000, 1 male; Konya, Taskent, Begreli Village, Gevne Valley, elev. 1585 m, 10 July 2000, 1 female; all T. Üstüner leg.

Distribution: Palaearctic: Iran, Israel, Kazakhstan, Kyrgyzstan, Tajikistan (Kertész 1908; Lindner 1937, 1974, 1975; Rozkosny & Nartshuk 1988; Woodley 2001). This is the first record for the fauna of Turkey.

3. *Adoxomyia obscuripennis* (Loew 1873); Figs 9-12, 19-20 and 28-29.

Male: Head transverse, hemispherical, eyes touching on frons. Hairs on eyes dense, black, as long as scape. Frontal triangle black, with silverish white pubescence. Face slightly produced in lateral view, with dense, black hairs, as long as scape. Cheeks and posteroventral part of head with erect black hairs. Black postocular area prominent but narrower than pedicel in upper half and somewhat swollen in lower half, about as wide as antennal scape is long, covered with appressed silverish white hairs. Antenna entirely black, flagellomeres 1-3 thickened, following flagellomeres small and slender, last flagellomere longer than 4 preceding combined. Thorax completely black. Scutum covered with long erect

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use



Figs. 15-21. *Adoxomyia* Antennae: 15- *A. aureovittata* male, 16- *A. aureovittata* female, 17- *A. cineracens* male, 18- *A. cineracens* female, 19- *A. obscuripennis* male, 20- *A. obscuripennis* female, 21- *A. sarudnyi* male (Scala 1 mm.): 22-23 *Adoxomyia aureovittata* male terminalia: 22- dorsal part of male genitalia, 23- ventral part of male genitalia; 24-25 *Adoxomyia cineracens* male terminalia: 24- dorsal part of male genitalia, 25- ventral part of male genitalia; 26-27 *Adoxomyia sarudnyi* male terminalia: 26- dorsal part of male genitalia, 27- ventral part of male genitalia; 28-29 *Adoxomyia obscuripennis* male terminalia: 28- dorsal part of male genitalia, 29- ventral part of male genitalia (Scale 0.1 mm.).

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use

black hairs and short appressed silverish white hairs. Scutellum with very strong and thick, black scutellar spines. Legs black, but knees brown. Femora with semi-erect silverish white hairs. Tibiae with semi-appressed, dense, silverish white hairs. Tarsomeres black on outer surface, brown on inner surface, with semi-appressed, dense, silverish white hairs. Halteres pale yellow. Abdomen entirely black, tergites 1-2 with erect, moderately long, white hairs. White hairs also distinct on distal half of tergite 4 and on entire tergite 5.

Female: Hairs above compound eyes dense and black, as long as antennal scape. Frons black, as wide as flagellum is long, with fine median groove. Frontal hairs as long as antennal scape, pale. Face black, covered below antennae with long black hairs. Cheeks and posteroventral part of head with erect, black and yellowish hairs. Postocular area as wide as flagellum, black and with appressed, dense, silverish white hairs. Antenna slender, about 1.1 times as long as head. Scape, pedicel and flagellomeres 4-7 shining black, three basal flagellomeres black, whitish grey dusted. Last flagellomere about 1.5 times as long as 4 preceding. Thorax black, covered with appressed, silverish white hairs. Scutellum, including strong and short scutellar spines, black. Top of postpronotal callus and postalar callus brownish. Legs black but knees brown, femora with semi-erect white hairs, tibiae with semi-appressed, dense, silverish white hairs. Tarsomeres black on outer surface, brown on inner surface, with semi-appressed, dense, silverish white hairs. Halteres pale yellow. Wings transparent and partly brownish, with brown veins. Abdomen entirely black, with erect, moderately long, silverish white hairs on sides of tergites 2-3. White hairs also developed on distal half of tergite 4 and on entire tergite 5.

Material Examined: Turkey: Isparta, Yalvaç, The Sultan Mountains, elev. 1660 m, 29 May 2001, 1 male, 2 females, T. Üstüner leg.

Distribution: Palaearctic: Azerbaijan, Kazakhstan, Russia, Tajikistan, Uzbekistan (Kertész 1908, 1923; Lindner 1937; Nartshuk 2004; Pleske 1925; Rozkosny 1983; Rozkosny & Nartshuk 1988; Woodley 2001). *Adoxomyia obscuripennis* (Loew 1873) is recorded from Turkey for the first time.

4. *Adoxomyia sarudnyi* (Pleske 1903); Figs 13-14, 21 and 26-27.

Male: Head transverse, hemispherical. Eyes touching on frons, dense, black eye hairs about 0.3 times as long as scape. Frontal triangle shining black, with fine median groove and white pile in upper part. Face, cheeks and posteroventral part of head black with whitish hairs. Postocular area black, about 0.4 times as wide as length of antennal scape, somewhat swollen in lower half, about 0.75 times as long as scape, covered with dense, silverish white hairs. Antenna relatively long, about twice as long as head in lateral view. Scape and pedicel orange but darkened on outer surface, with strong, erect, black hairs. First 3 flagellomeres orange on inner surface but darkened on outer surface, rest of flagellum black. Thorax black, with short appressed yellowish golden hairs and long semi-appressed black hairs intermixed. Tops of postpronotal callus reddish brown. Scutellum black and scutellar spines yellow. Wings transparent brownish, basal wing veins bright orange and distal veins brown, wing tip much darker and contrasting to clear wing base. Legs entirely bright yellow to orange except for black coxae. Fore tarsi yellowish on inner surface, darkened on outer surface. Mid and hind tarsi yellow, but last three tarsomeres darkened on outer surface. Femora with semi-erect, sparse, yellowish hairs. Tibia with appressed, dense, yellowish hairs. Tarsi with thick, adpressed, dense, yellowish hairs. Abdomen black with posterolateral, silverish white lateral markings on tergirtes 3-4.

Material Examined: Turkey: Konya, Taskent, Begreli Village, Gevne Valley, elev. 1570 m, 1 July 2001, 1 male, T. Üstüner leg.

Distribution: Palaearctic: Afghanistan, Iran (Kertész 1908, 1923; Lindner 1937; Pleske 1925; Rozkosny & Nartshuk 1988; Woodley 2001).

Discussion

The genus *Adoxomyia* was previously unknown from Turkey. This fact is fairly surprising because many species were recorded from adjacent countries and are known from southern, often arid parts of the Palaearctic region. Therefore it was to be expected that at least some species of this genus would be found in Turkey as well. That is why in this report we constructed an actual identification key to the all East-Mediterranean species. Due to intense collecting efforts in many different localities in Turkey, 4 species of this genus were collected. The most remarkable record is *Adoxomyia aureovittata* which was described as *Euparyphus aureovittatus* by Bigot in 1879 from an unknown locality. The record from Turkey represents the first evidence that it is a Palaearctic species and an unpublished record from Greece (Hauser, personal communication) confirms that this species probably has an East- Mediterranean distribution.

Adoxomyia cineracens is distributed in Transcaspia, in the Near East (Iran, Israel) and Central Asia. The type locality is Kizilkum (Kazakhstan). Our record thus closes the distribution gap between the known records from Israel and the type locality.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use

Our record of *Adoxomyia obscuripennis* represents the most southern and western point of its range and the second evidence of its occurrence in the western part of Asia (cf. a record from Azerbaijan in Nartshuk 2004).

Adoxomyia sarudnyi was only known from Afghanistan and Iran. Our record in Turkey represents the most western locality of this very rare species.

ACKNOWLEDGMENTS

Our thanks to Dr. Martin Hauser and Prof. Dr. R. Rozkosny for critically reviewing the manuscript.

REFERENCES CITED

DUSEK, J., AND ROZKOSNY, R. 1963. Revision mitteleuropäischer Arten der Familie Stratiomyidae (Diptera) mit besonderer Berücksichtigung der Fauna der ČSSR I. Acta Societatis Entomologicae Cˇechoslovenіae 60(3): 202-221.

HAUSER, M. 2002. A new species of *Adoxomyia* Kertész, 1907 (Diptera: Stratiomyidae) from Socotra, Yemen. Fauna of Arabia 19: 463-466.

JAMES, M. T., AND MCFADDEN, M. W. 1969. The genus *Adoxomyia* in America North of Mexico (Diptera: Stratiomyidae). Journal of the Kansas Entomological Society 42: 260-276.

KERTÉSZ, K. 1907. Eine neuer Dipteren-Gattungsname. Annalen Historico-Naturales Musei Nationalis Hungarici 5(2): 499.

KERTÉSZ, K. 1908. Catalogus dipterorum hucusque descriptorum. Volumen III. Stratiomyiidae, Erinnidae, Coenomyidae, Tabanidae, Pantophthalmidae, Rhagionidae. Museum Nationale Hungaricum, Budapestini, 366 pp.

KERTÉSZ, K. 1923. Vorarbeiten zu einer Monographie der Notacanthen. XLV-L. Annales Historico Naturales Musei Nationalis Hungarici, 20: 85-129.

LİNDNER, E. 1937. 18. Stratiomyiidae [part]. Lieferung 114. Pp. 145-176. In Lindner, E. [ed.], Die Fliegen der palaearktischen Region. E. Schweizert'sche Verlagsbuchhandlung, Stuttgart, 218 pp.

LİNDNER, E. 1974. On the Stratiomyidae (Diptera) of the Near East. Israel J. Entomol. 9: 93-108.

LİNDNER, E. 1975. On some Stratiomyidae (Diptera) from the Near East. Israel J. Entomol. 10: 41-49.

MCFADDEN, M. W. 1967. Soldier fly larvae in America north of Mexico. Proc. U.S. Natl. Mus. 121: 1-72.

NARTSHUK, E. P. 2004. New data on *Adoxomyia* Bezi from the Caucasus and Eastern Europe (Diptera: Stratiomyidae). Zoosystematica Rossica 12: 263-266, St. Petersburg.

ÔUCHI, Y. 1938. On some stratiomyiid flies from eastern China. J. Shanghai Sci. Inst., Section III 4: 37-61.

PLESKE, T. 1925. Études sur les Stratiomyiinæ de la région paléarctique—III.—Revue des espéces paléarctiques de la sous-famille des Clitellariinae. Encyclopédie Entomologique, Série B (II), Diptera 1(3-4): 105-119, 165-188.

ROZKOSNY, R. 1983. A Biosystematic Study of the European Stratiomyidae (Diptera), Volume 2: Clitellariinae, Hermetiinae, Pachygasterinae and Bibliography. Dr. W. Junk, The Hague, Boston, London, 431 pp.

ROZKOSNY, R., AND NARTSHUK, E. P. 1988. Family Stratiomyidae, pp. 42-96 *In* A. Soós and L. Papp [eds.], Catalogue of Palaearctic Diptera. Volume 5. Athericidae-Asilidae. Akadémiai Kiadó Budapest, 446 pp.

ÜSTÜNER, T., AND HASBENLİ, A. 2003. First record of the subfamily Beridinae (Diptera: Stratiomyidae) from Turkey. Studia Dipterologica 10(1): 186-188, Halle (Saale).

ÜSTÜNER, T., HASBENLİ, A., AND AKTÜMSEK, A. 2002. Contribution to subfamily 360 Clitellariinae (Diptera, Stratiomyidae) in Fauna of Turkey. J. Entomol. Res. Soc. 4(1): 19-24.

ÜSTÜNER, T., HASBENLİ, A., AND ROZKOŠNÝ, R. 2003. First record of *Hermetia illucens* (Linnaeus, 1758) (Diptera, Stratiomyidae) from the Near East. Studia Dipterologica 10(1): 181-185, Halle (Saale).

ÜSTÜNER, T., AND HASBENLİ, A. 2004. A new species of *Oxycera* Meigen (Diptera: Stratiomyidae) from Turkey. Entomol. News 115(3): 163-167.

WOODLEY, N. E. 2001. A World Catalog of the Stratiomyidae (Insecta: Diptera). Backhuys Publishers, Leiden, 474 pp.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 10 Dec 2020
Terms of Use: https://bioone.org/terms-of-use