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TWO NEW SPECIES OF THE GENUS *EUMERUS* MEIGEN, 1822 (DIPTERA: SYRPHIDAE) FROM CENTRAL ASIA

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Summary. Two species of *Eumerus tricolor* group, namely *Eumerus kopetdagicus* **sp. n.** from the Kopet Dag Mountains in Turkmenistan and *Eumerus ryzhik* **sp. n.** from Southeastern Uzbekistan, are described. The first species is most similar to *E. atricolorius* Gilasian et van Steenis, 2020 (females of both species are unknown) but differs from latter by mainly black dorsal surface of the abdomen as well as by yellow basal 1/3 of tibiae. The second new species is similar to *E. binominatus* Hervé-Bazin, 1923, but differs by entirely pale pile on face, frons and vertex as well as orange basoflagellomere and characters of male genitalia.

Key words: Syrphidae, taxonomy, new species, description, Turkmenistan, Uzbekistan.

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Резюме. Описываются два новых для науки вида из группы *Eumerus tricolor*, а именно *Eumerus kopetdagicus* **sp. n.** из Туркменистана (горы Копетдаг) и *Eumerus ryzhik* **sp. n.** из юго-восточного Узбекистана. Первый вид наиболее близок к *E. atricolorius* Gilasian et van Steenis, 2020 (самки обоих видов неизвестны), но отличается от него почти полностью черным брюшком и желтой базальной третью голеней. Второй вид сходен с *E. binominatus* Hervé-Bazin, 1923, но отличается полностью светлым опушением лица, лба и темени, а также оранжевым базофлагелломером и строением гениталий самца.

INTRODUCTION

Eumerus Meigen, 1822 is one of the largest genera of Palaearctic Syrphidae (Stackelberg, 1961; Peck, 1988; Speight, 2017). Most of known species are distributed in Central Asia and the Mediterranean, from where a lot of new species were described recently (Grković *et al*., 2015; van Steenis *et al.*, 2017; Grković *et al*., 2017; Mutin, 2019; Grković *et al*., 2019a, b; Barkalov, 2020; Barkalov *et al*., 2020; Gilasian *et al*., 2020; Grković *et al*., 2021). In this paper the descriptions of two new species from Central Asia from the *Eumerus tricolor* group are given. The position of the new species is considered among Palaearctic congeners (Stackelberg, 1961), as well as the European species of *Eumerus tricolor* group (Grković *et al*., 2021) and Iranian species of the same group (van Steenis *et al.*, 2017).

MATERIAL AND METHODS

Specimens were studied using the binocular microscopes Stemmi 2000-C and MBS-10. The morphological terminology follows Thompson (1999). Male genitalia were dissected and prepared for study following Hippa (1968) and stored in microvials containing glycerin, attached to appropriate specimens. All drawings were prepared with the aid of an ocular grid and graph paper. Photographs were taken in the part with an Olympus SZX16 stereomicroscope and an Olympus DP74 digital camera, and then stacked using Helicon Focus software. Others were taken with camera Carl Zeiss AxioCam MRc5. The final illustrations were post-processed for contrast and brightness using Adobe® Photoshop® software.

The types of the new species are deposited in the collection of the Siberian Zoological Museum of the Institute of Systematics and Ecology of Animals Siberian Branch of RAS, Novosibirsk (SZMN) and the Federal Scientific Center of East Asia Terrestrial Biodiversity, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok (FCBV).

DESCRIPTIONS OF NEW SPECIES

Eumerus kopetdagicus **Barkalov et Mutin sp. n.**

https://zoobank.org/NomenclaturalActs/8A06A088-A372-4FF2-937A-5806B83D9750

Figs 1–6

TYPE MATERIAL. Holotype – ♂, **Turkmenistan:** Kopet Dag, 20 km E Nohur, Kara-Yalchi Gorge, 28.IV 1991, V. Dubatolov, V. Zinchenko leg. [SZMN]. Original label: "Туркмения, Копетдаг, 20 км В Нохура, ущ. Караялчи, 28.04.1991, leg. В.В. Дубатолов, В.К. Зинченко". Paratype: 1 ♂, **Turkmenistan:** Central Kopet Dag, Dushak Mountain, 1800-1900 m, 10.IV 1987, V. Dubatolov leg. [SZMN].

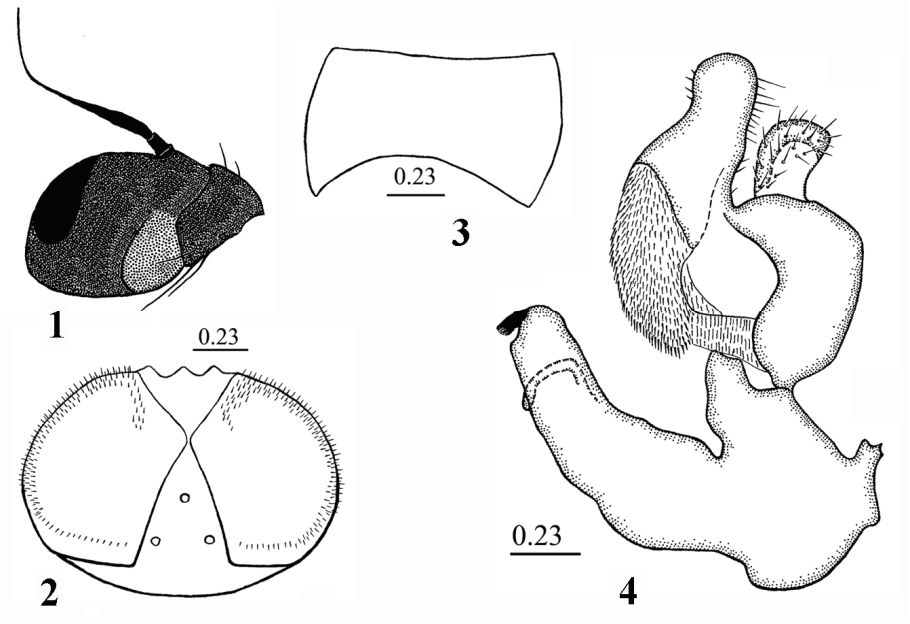
DESCRIPTION. Male. Body length 9.0–9.6 mm, wing length 6.1–6.2 mm.

Head. Face narrow, black with blueish reflection, grey pollinose in middle, with dense erect silver pile. Frons narrow, with appressed dense silver pile, masking its coloration. Vertex long, shiny black, with white and black pile; ocellar triangle equilateral. Occiput shiny black, without pollinose, with yellow pile. Scapus and pedicel of antenna dark brown; basoflagellomere small, irregular form (Fig. 1), mainly dark-brown except light-brown basal part, with deep groove separating light and dark parts, on apical part with clearly demarcated ellipsoidal fossa; arista rather short, thickened in basal ¼, black with lighter tip. Eyes with short distinct white pile, coalescent at one point touching for a distance of 5 ommatidia (Fig. 2).

Thorax. Scutum and scutellum coarsely punctate, shiny, with short erect yellow pile; scutellum with distinct marginal bearding. Pleura shiny black, with short yellow pile; katatergum with short dense brown pile (Fig. 5). Legs: pro- and mesocoxae brown, metacoxa black; femora mainly black except yellow apex, with short yellow pile; metafemur moderately swollen (Fig. 6); tibiae yellow in basal 1/3 and apically, shorter than femora; metatibia without any setulae baso-ventrally; tarsi blackish dorsally and yellow ventrally, basal and apical tarsomeres yellowish apically. Wings hyaline; membrane in the main with microtrichia except basal half of cells *bm* and *cup* bare.

Abdomen coarsely punctate, mostly black except brownish posterior 1/3 of tergum IV, with grey pollinose narrow oblique maculae on terga II, III and IV; tergum II with erect white pile laterally and short appressed black and white pile otherwhere; sternum IV with shallow incision (Fig. 3). Genitalia – Fig. 4.

Female. Unknown.



Figs 1–4. *Eumerus kopetdagicus* sp. n., male. 1 – pedicel and flagellomere laterally; 2 – head dorsally; 3 – sternum IV ventrally; 4 – genitalia laterally. Scale bars in mm.

DIAGNOSIS. In the key to Palaearctic *Eumerus* species (Stackelberg, 1961) *E. kopetdagicus* sp. n. keys out to *E. latitatsis* Macquart, 1838, but well differs from latter by entirely shiny scutum, without pollinose vittae (scutum of *E. latitarsis* with distinctly visible pattern of pollinose maculae and vittae). In addition, *E. latitarsis* is the endemic of Canary Islands. The new species is very similar to *E. atricolorius* Gilasian et van Steenis, 2020 found in Iran and also known only from the male, but differs from latter by mainly black dorsal surface of abdomen as well as yellow basal 1/3 of tibiae (*E. atricolorius* has abdomen predominantly reddish-brown and tibiae with basal narrow orange margin). Male genitalia of *E. kopetdagicus* sp. n. is also a like of the *E. atricolorius* one, however posterior lobe of surstylus (lateral view) has not visible rows of short median setulae and is covered rather by thin pile.

DISTRIBUTION. Turkmenistan: Kopet Dag Mountains.

ETHYMOLOGY. The species name reflects the geographic location of catching of the type material.

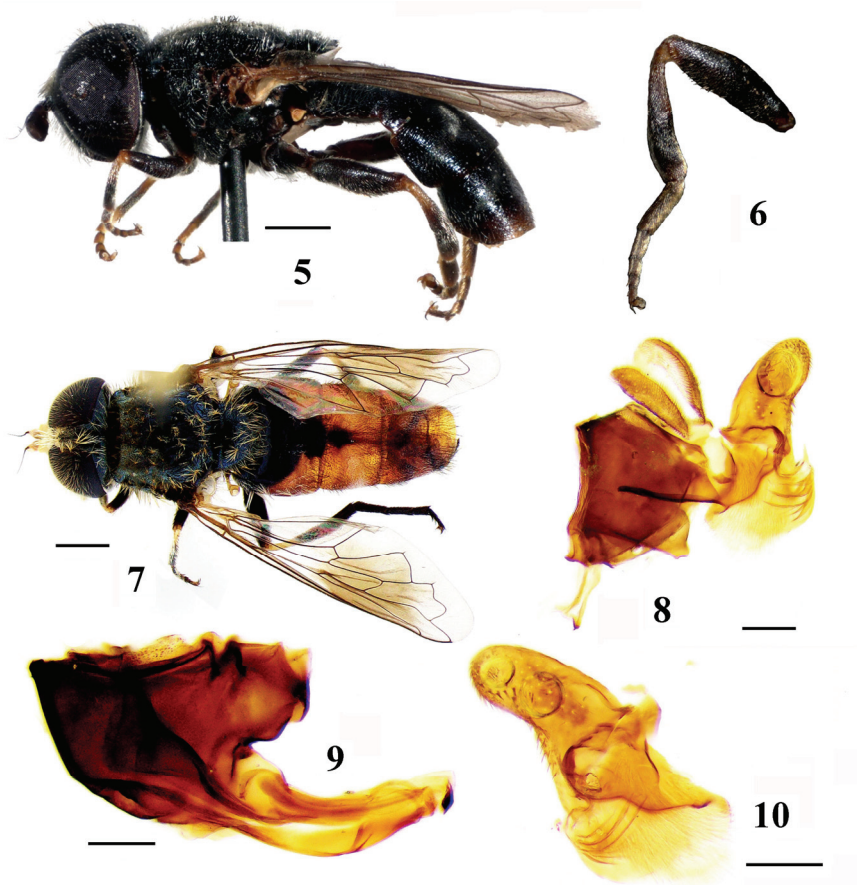
***Eumerus ryzhik* Barkalov et Mutin sp. n.**

https://zoobank.org/NomenclaturalActs/ABACC63C-F87B-49AF-824A-CAB58AAB9E71

Figs 7–15

TYPE MATERIAL. Holotype – ♂, **Uzbekistan:** Derbent, 38°12’ N, 67°01’ E, 1012 m, 12.IX 2017, M. Proshchalykin leg. [SZMN]. Original label: “Узбекистан, Дербент 12–14. 09.2017, М. Прощалыкин”. Paratypes: 1 ♂, 1♀, the same label as holotype [FCBV].

DESCRIPTION. Male. Body length 8,5–8.9 mm, wing length 6.3–6,5 mm.



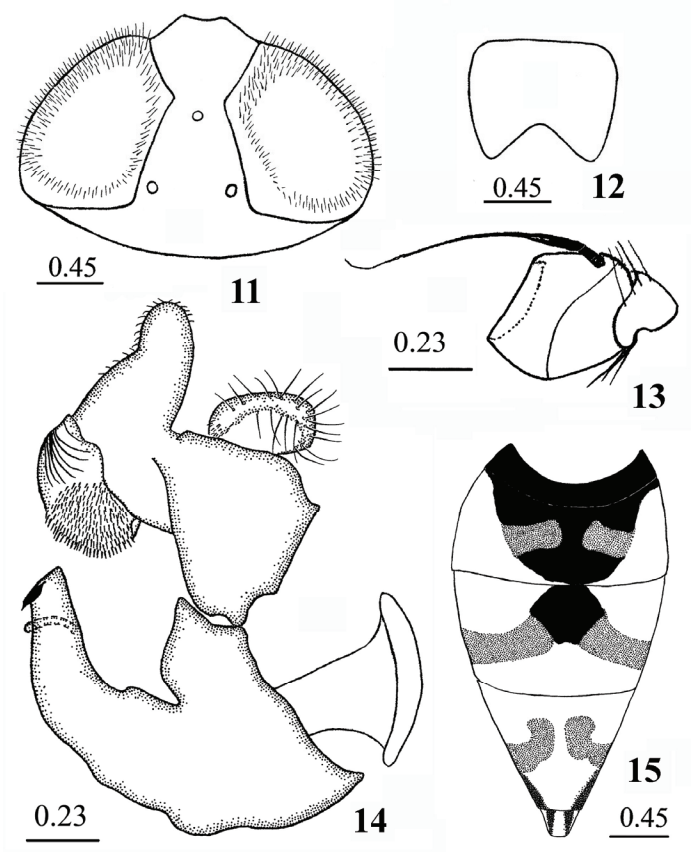
Figs 5–10. *Eumerus* ssp. 5 – 6 – *E. kopetdagicus* sp. n.: 5 – male laterally; 6 – metaleg laterally; 7 – 10 – *E. ryzhik* sp. n.: 7 – male dorsally; 8 – epandrium laterally; 9 – hypandrium laterally; 10 – surstylus laterally. Scale bars: 5, 7 = 1.0 mm; 8–10 = 0.2 mm.

Head. Face black, rather shiny, weakly grey pollinose, with long yellowish-white pile; head width under antennae about 3,2 times as wide as face. Frons with dense long yellowish-white pile masking black coloration of chitin. Vertex grey pollinose anteriorly and shining black behind ocellar triangle, with long erect yellowish pile; ocellar triangle isosceles. Occiput shiny dorsally, with yellowish pile. Scapus of antenna black, very short; pedicel bright orange; basoflagellomere bright orange, with deep transversal groove dividing its into two unequal parts; larger distal part with oval fossa apically (Fig. 13); arista black, thickened basally. Eyes distinctly dichoptic, with long dense yellow pile; least distance between eyes almost equal to width of basoflagellomere (Fig. 11).

Thorax. Scutum and scutellum weakly punctate, shiny black, with dense erect long yellowish pile. Pleura shiny black, mainly with yellowish pile, except katatergum with short black pile. Coxae and trochanters black, unmodified. Femora black, with yellow apex; pro- and

mesofemora with very short black pile anteriorly and long yellow pile posteriorly; metafemur moderately swollen, with a pair of apico-venral rows of weak short setae; its antero-ventral surface with short yellow pile basally and black ones apically. Tibiae mainly black except yellow basal ¼; pro- and mesotibiae, with long yellow pile on the outer surface; vestiture of metatibia shorter, pale basally and black apically. Tarsi entirely black. Wing infuscated in apical half, from anterior margin to basal part of cell CuA_1 and from fork of vein RS and transversal vein bm-cu to vein M_1; basal cells mostly bare of microtrichia.

Abdomen with long erect white pile on lateral sides of tergum II, shorter erect white and black pile on terga III–IV laterally and short semierect white and black pile otherwhere. Tergum I completely black; tergum II orange-reddish with goblet-like black maculae medially (Fig. 7); tergum III mostly orange-reddish with narrow black vitta baso-medially; tergum IV completely orange. Terga II, III and IV with rather broad oblique grey pollinose maculae, distinctly visible from posterior view. Sternum IV elevated, with shallow incision (Fig. 12). Genitalia – Figs 8–10, 14.



Figs 11–15. *Eumerus ryzhik* sp. n. 11 – head of male dorsally; 12 – sternum IV of male ventrally; 13 – pedicel and flagellomere laterally; 14 – male genitalia laterally; 15 – abdomen of female dorsally. Scale bars in mm.

Female. Body length 8.5 mm, wing length 6.2 mm.

Similar to male except sexual dimorphism: basoflagellomere bigger, frons broader, vertex with black pile, mesonotum with shorter pile, a less intense infuscated apical part of wing.

DIAGNOSIS. Male of *E. ryzhik* sp. n. goes to couplet 25 in the key to Palaearctic species of the genus *Eumerus* (Stackelberg, 1961), which leads to *E. ammophilus* Paramonov, 1927 and *E. binominatus* Hervé-Bazin, 1923, but it differs from the first by smaller size, scutum without pollinose marks and mainly orange-reddish abdomen (*E. ammophilus* has scutum with a pair of grey pollinose vittae on anterior half and dark abdomen with a pair of small yellow-brown maculae on tergum II) and differs from the second by entirely pale pile on face, frons and vertex as well as orange basoflagellomere (*E. binominatus* has black pile on frons and under antennae, and brown-red basoflagellomere). The female of *E. ryzhik* sp. n. goes to the antithesis 38(37), where the *Eumerus palaestinensis* Sack, 1949 is located, and differs from latter by wing infuscated and abdominal pattern.

Male of *E. ryzhik* sp. n. is like to one of *Eumerus pilosipedes* Gilasian et van Steenis, 2020 and differs from the latter by lack of pollinose vittae on the scutum as well as characters of genitalia. On the contrary, the characters of male genitalia of *E. ryzhik* sp. n. are closer to *Eumerus grallator* Smit, 2019, *E. tenuitarsis* Grković & Vujić, 2019, *E. vallicolus* Gilasian et van Steenis, 2020, but the new species differs from listed species by orange flagellomere and other numerous characters.

DISTRIBUTION. The species is known from type locality only: Uzbekostan, Surxondaryo Region, Derbent Village.

ETHYMOLOGY. The species name is a noun in adjective form the Russian «рыжик» and indicates the presence of rufous abdominal coloration.

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