




***Terellia hajastanica*, a new species of tephritid flies (Diptera: Tephritidae) associated with *Centaurea pseudoscabiosa* subsp. *glehnii* (Asteraceae) in Armenia**

***Terellia hajastanica* – новый вид мух-пестрокрылок (Diptera: Tephritidae), связанный с *Centaurea pseudoscabiosa* subsp. *glehnii* (Asteraceae) в Армении**

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Abstract. A new species of tephritid flies, *Terellia hajastanica* sp. nov., is described from Armenia. The new species belongs to the *T. virens* species-group and is characterised by the combination of entirely hyaline wing, orange spots on the katapisternum and meron, longitudinal orange stripe running from anterior spiracle through the anepisternum to anepimeron, and the glans of phallus similar in shape to that of *T. arailerica* Evstigneev, 2021. The phallus in both the species has a long tubular extension of the glans, with filaments separated from each other near the apex of extension. The glans of the new species is smaller, has a shorter portion of tubular extension between the rod and bifurcation of the filaments. The new species is similar to *T. babaki* V. Korneyev, 2017 from the *T. amberboae* species-group in the presence of orange stripe on the pleura. Larvae of the new species develop in the capitula of *Centaurea pseudoscabiosa* subsp. *glehnii* and pupate therein, whereas the larvae of *T. arailerica* develop in the capitula of *C. spectabilis* and pupate in their stems.

Резюме. Новый вид мух-пестрокрылок *Terellia hajastanica* sp. nov., относящийся к группе видов *T. virens*, описан из Армении. Новый вид характеризуется полностью прозрачными крыльями, оранжевыми пятнами на катэпистерне и мероне, продольной оранжевой полосой, идущей по боковой поверхности груди над катэпистерном (от переднего дыхальца через анэпистерн к анэпимеру) и глансом фаллуса, форма которого сходна с таковой у *T. arailerica* Evstigneev, 2021. Самцы двух видов сходны по наличию в глансе фаллуса длинной трубчатой структуры с филаментами, разделяющимися около её вершины. Гланс фаллуса у нового вида характеризуется меньшим размером и меньшей длиной трубчатой структуры на отрезке между стержнем и местом раздвоения филаментов. Новый вид сходен с *T. babaki* V. Korneyev, 2017 из группы видов *T. amberboae* наличием оранжевой полосы на боковой поверхности груди. Личинки нового вида развиваются в соцветиях *Centaurea pseudoscabiosa* subsp. *glehnii* и окукливаются там же, в то время как личинки *T. arailerica* развиваются в соцветиях *C. spectabilis*, а для окукливания мигрируют в стебли.

Key words: Armenia, Transcaucasia, *Centaurea pseudoscabiosa*, host plants, Tephritidae, *Terellia*, new species

Ключевые слова: Армения, Закавказье, *Centaurea pseudoscabiosa*, кормовые растения, Tephritidae, *Terellia*, новый вид

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Introduction

This article continues the series of publications on the tephritid flies of the Caucasus and Transcaucasia (Evstigneev & S. Korneyev, 2018; S. Korneyev & Evstigneev, 2019; Evstigneev, 2020a, 2020b; Evstigneev & Glukhova, 2020, 2021, 2022; Evstigneev, 2021; Evstigneev & Przhiboro, 2021). The previous articles by the author on tephritid flies in Armenia included the description of *Terellia arailera* Evstigneev, 2021 and the first record of *T. uncinata* White, 1989 in Transcaucasia (Evstigneev, 2021; Evstigneev & Glukhova, 2022). Both the species belong to the *T. virens* species-group. It is known that the larvae of various species in the *T. virens* group develop in the capitula of the genera *Centaurea* L. (Korneyev, 1985; White, 1989; Korneyev et al., 2013; Evstigneev, 2021) and *Cousinia* Cass. (Korneyev et al., 2013). The aim of this article is to describe another new species from the *T. virens* group. The larvae of the new species develop in the capitula of *Centaurea pseudoscabiosa* subsp. *glehnii* (Trautv.) Wagenitz (syn. *C. glehnii* Trautv.) from the section *Acrocentron* (Cass.) DC.

Material and methods

The host plants were collected by the author on 11 July 2021. The adults emerged from the capitula of host plants during April 2022. For rearing tephritid flies from host plants, the capitula were dissected from stems and placed in cotton bags (if stored in such manner, the capitula dry out more slowly and gradually). Morphological structures were measured using an ocular micrometer. For taking photos, we chose the specimens that were just reared. In the case when we could not take photos immediately after rearing of flies, we kept them in a freezer to retain the flies fresh long enough to photograph them later. The photos were taken using a Micromed MC-2 ZOOM stereoscopic microscope and a Sony Cyber-shot DSC-H3 camera. Photos of the genitalia were taken through a Biolam C11 microscope ("LOMO" company, Soviet Union) using the same camera.

The genitalia of males and females were extracted, placed in a water solution of glycerin (86%) for one to three days (sometimes, five to seven days), after that placed between a glass slide

and a coverslip and photographed. This technique provides the best quality material for photography. After being placed in glycerin solution, the genitalia gradually returned to their natural shape (Evstigneev & Glukhova, 2020; Evstigneev, 2021; Evstigneev & Przhiboro, 2021).

The holotype is deposited at the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia). The paratypes are deposited in the private collection of the author.

Results

Family Tephritidae

Subfamily Tephritinae

Tribe Terelliini

Terellia Robineau-Desvoidy, 1830

Terellia hajastanica sp. nov.

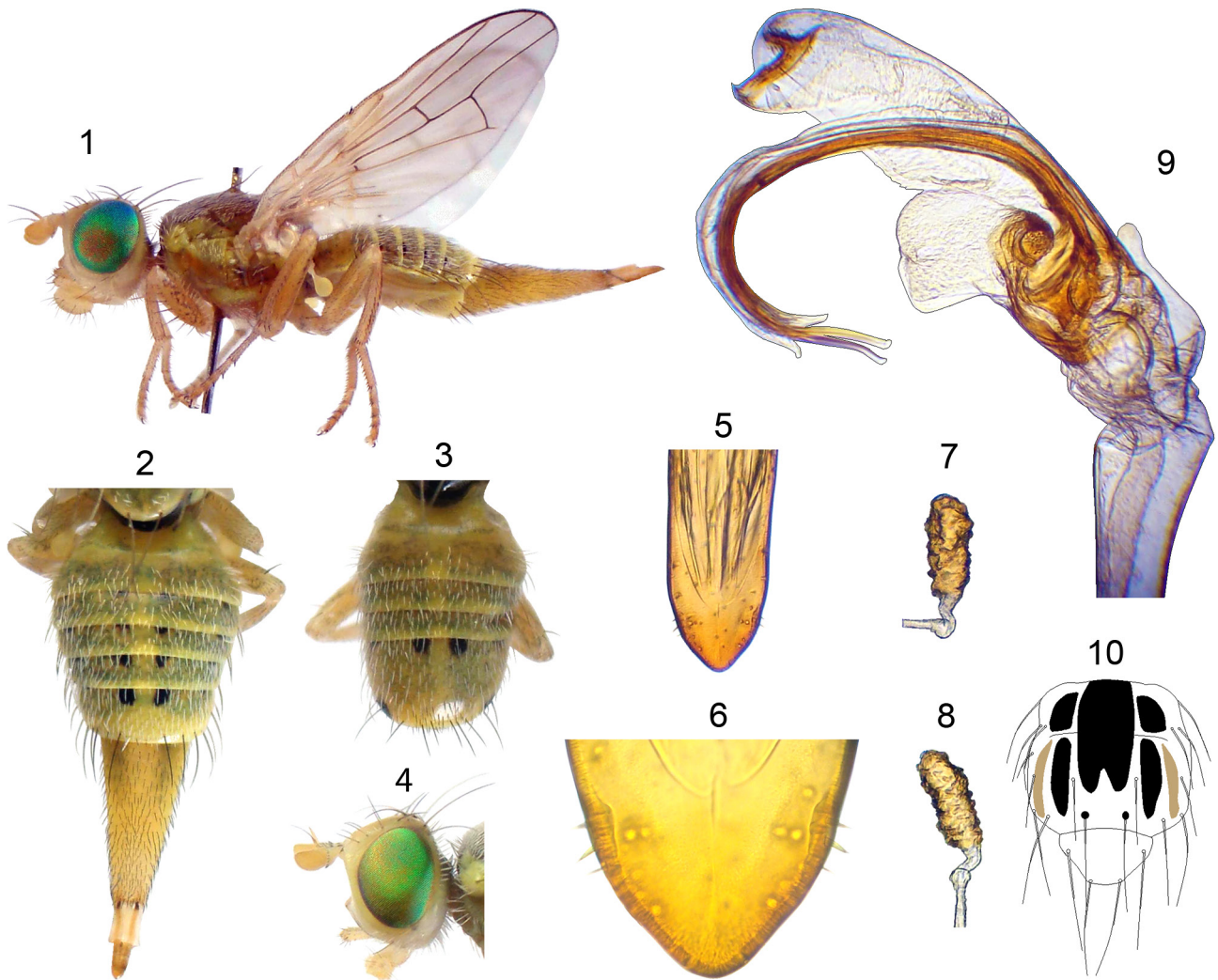
(Figs 1–10, 14)

Holotype. Male, **Armenia**, *Vayots Dzor Prov.*, nr. Mozrov Vill., mountain steppe, reared on 19.IV.2022 from capitulum of *Centaurea pseudoscabiosa* subsp. *glehnii* collected on 11.VII.2021.

Paratypes. Same locality and habitat, 2 females and 4 males reared on 16–23.IV.2022 from capitula of *C. pseudoscabiosa* subsp. *glehnii* collected on 11.VII.2021.

Description. Body medium-sized: body length 4.1–6.4 mm, wing length 3.5–4.1 mm. General body colour yellowish green. Ratio of head length to its height and width as 1 : 1.2 : 1.6. Ocellar triangle yellow. Frons yellow to orange. Setae yellow to brownish yellow. Palpus yellow, often apically orange, with brownish setulae at apex. Proboscis yellow. Scape and pedicel yellow, with crown of dark setulae. First flagellomere yellow to orange.

Thorax yellowish green. Thorax length 1.5–2.0 mm. Katepisternum and meron with orange spots. Pleura with orange stripe extending from anterior spiracle through anepisternum to anepimeron (Fig. 1). Legs yellow to dark yellow. Wing entirely hyaline, with light yellow pterostigma. Distal portion of vein *M* 2.1–2.3 times as long as penultimate section. Wing 2.5–2.6 times as long as wide. Scutum yellowish green, with pattern of following black and orange (ochrous) elements (Fig. 10): broad black median stripe (vitta) extending along acrostichal line, from anterior margin of scutum to slightly posterior of level of

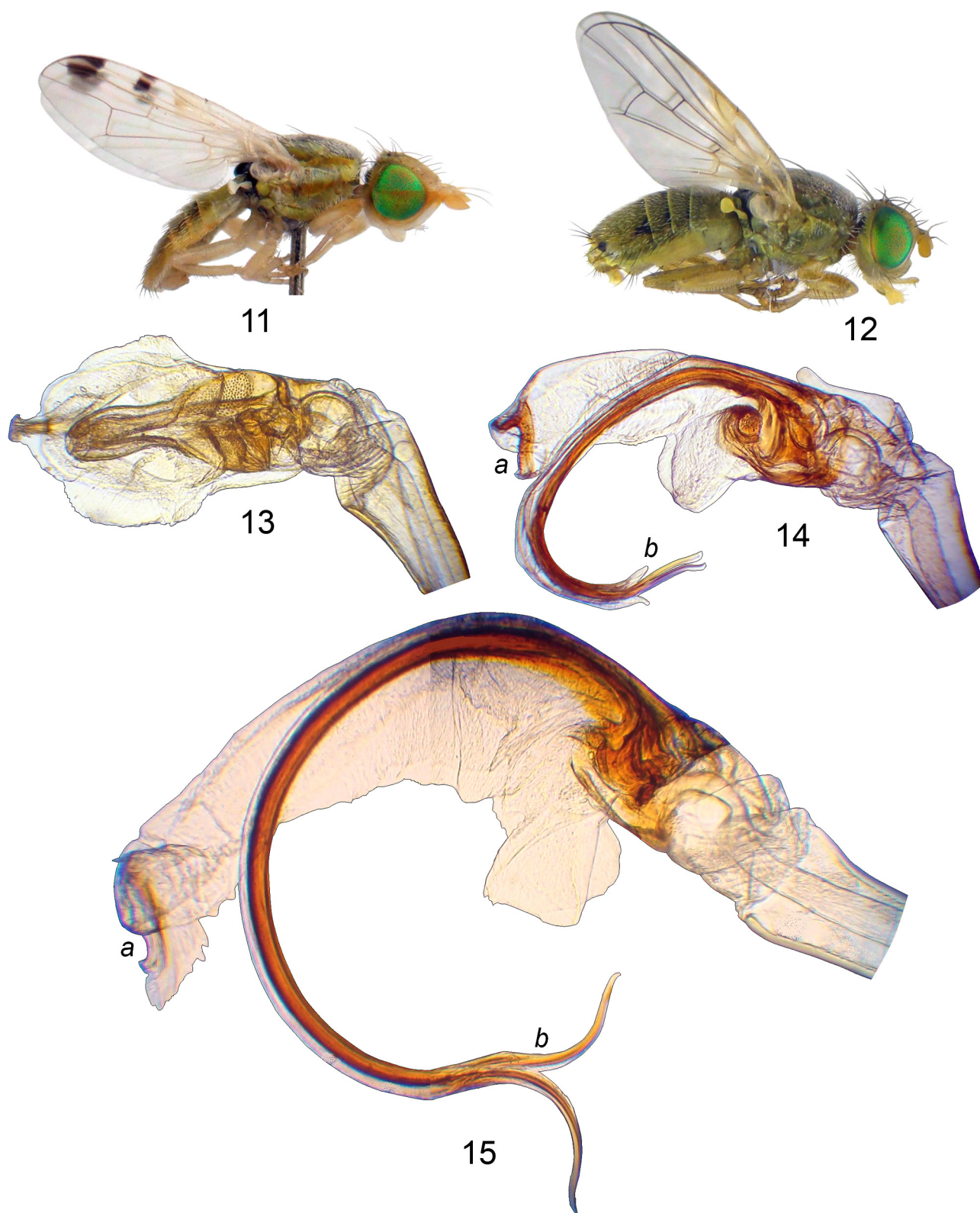


Figs 1–10. *Terellia hajastanica* sp. nov., paratypes. 1, female habitus (in lateral view); 2, female abdomen (in dorsal view); 3, male abdomen (in dorsal view); 4, male head (in lateral view); 5, distal part of aculeus; 6, apex of aculeus (magnified); 7–8, spermathecae; 9, glans of phallus; 10, pattern of scutum.

dorsocentrals, bifurcating distally; oval black spot located laterally, anterior to transverse suture; two lateral stripes located posterior to transverse suture: black stripe between level of dorsocentrals and intra-alar seta and orange stripe lateral to intra-alar seta. Bases of prescutellar acrostichal setae with small black spots (Fig. 10). Scutellum with two pairs of setae and white setulae.

Abdomen yellowish green. Male abdominal tergites (Fig. 3) with yellow posterior margins. Male abdominal tergites 3–4 with pairs of anteromedial marks (or obscured by preceding tergite, as in Fig. 3). Male abdominal tergite 5 with pairs of basal central (anteromedial), basal lateral (anterolateral) and apical lateral (lateroapical) black

spots. Anterolateral spots smaller than anteromedial ones. Tergite 5 of male with white setulae, except a few dark posteromedial setulae and marginal setae. Female abdominal tergites 3–6 (Fig. 2) with pairs of anteromedial and smaller anterolateral marks (often obscured by preceding tergite). All tergites of female mostly with white setulae. Dark setae located on posterior and lateral margins of tergite 6, as well as on lateral margins of tergites 3–5. Colour intensity of dark setae variable. Female abdominal tergites 1–5 with yellow posterior margins. Area of yellow colour on female tergite 6 larger than that on tergites 1–5. Seventh tergosternite (= syntergosternite 7, = tergosternum 7, = oviscape) dark yellow, with dark setulae; its



Figs 11–15. *Terellia* spp., males. *Terellia babaki* V. Korneyev, 2017 (11, 13) (Armenia, Ararat Province, foothills of Urts Mountain Range near Surenavan Village), *T. arailerica* Evstigneev, 2021 (12, 15) (Armenia, Aragatsotn Province, Arailer Mountain) and *T. hajastanica* **sp. nov.**, paratype (14). 11–12, habitus; 13–15, glans of phallus. Abbreviations: *a*, rod; *b*, bifurcation point.

length 1.2–1.3 mm. Aculeus length 2.0–2.1 mm. Spermatheca yellow, more or less ellipsoid, with wrinkled/fuzzy surface (immediately after being extracted and placed in glycerine; Figs 7, 8).

Comparison. The main diagnostic character for distinguishing the species of the *Terellia virens* group is the shape of the glans of phallus (Figs 13–15). In this character, *T. hajastanica* sp. nov. is similar to the recently described *T. arailerica*, which has the glans with a long tubular extension, with the filaments widely separated from each other near apex (Fig. 15: *b*). The shape of the glans in the two species is similar but not identical: in *T. hajastanica* sp. nov. (Fig. 14), the glans is smaller and the portion of tubular extension of the glans between the rod and bifurcation of the filaments is shorter than in *T. arailerica* (Fig. 15). *Terellia hajastanica* sp. nov. also differs from *T. arailerica* in having orange spots on the katapisternum and meron (Fig. 1) vs. black spots in *T. arailerica* (Fig. 12).

In addition to the orange spots on katapisternum and meron, the new species has a longitudinal orange stripe on pleura. This stripe is similar to the stripe of *T. babaki* V. Korneyev, 2017 (Fig. 11), which belongs to the *T. amberboae* species-group (Evstigneev, 2020a).

Bionomics. The larvae of the new species develop in the capitula of *Centaurea pseudoscabiosa* subsp. *glehnii* and pupate in the capitula, as do most of species in the *Terellia virens* group. *C. pseudoscabiosa* subsp. *glehnii* is illustrated in Figs 16–19 (see the Addenda section). The larvae of the similar species *T. arailerica* develop in the capitula of *Centaurea spectabilis* (Fisch. et C.A. Mey.) Sch. Bip. [syn. *Tomanthea spectabilis* (Fisch. et C.A. Mey.) Takht.] and migrate into the stem for pupation.

Etymology. The species name is an adjective derived from Hajastan (Հայաստան in Armenian), the native Armenian name for Armenia, the country where the type locality is situated.

Distribution. The new species is known from the Vayots Dzor Province of Armenia.

Addenda

Electronic supplementary material.

Figs 16–19. *Centaurea pseudoscabiosa* subsp. *glehnii*, the host plant of *Terellia hajastanica* sp.

nov. in its type locality (Armenia, Vayots Dzor Province, Mozrov Village, 11 July 2021). **16**, capitulum; **17**, upper part of flowering and fruiting stems; **18**, flowering plant in mountain steppe; **19**, fruiting plant in mountain steppe.

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