

UDC 595.773.4(55)

## A NEW SPECIES OF THE GENUS *TEPHRITIS* (DIPTERA, TEPHRITIDAE) FROM TURKMENISTAN, KAZAKHSTAN AND IRAN

S. V. Korneyev<sup>1</sup>, S. Mohamadzade Namin<sup>2</sup>

<sup>1</sup> Schmalhausen Institute of Zoology, NAS of Ukraine,  
vul. B. Khmelnytskogo, 15, Kyiv, 01601 Ukraine  
E-mail: s.v.korneyev@gmail.com

<sup>2</sup> Department of Plant Protection, Varamin-Pishva branch,  
Islamic Azad University, Varamin — Iran  
E-mail: mohamadzade@iauvaramin.ac.ir

**A New Species of the Genus *Tephritis* (Diptera, Tephritidae) from Turkmenistan, Kazakhstan, and Iran.**  
**Korneyev S. V., Mohamadzade Namin S.** — *Tephritis tridentata* S. Korneyev and Mohamadzade Namin, sp. n. reared from the flower heads of *Jurinea baissunensis* Iljin in South-Eastern Kazakhstan, Western Turkmenistan and Southern Iran is described. It is similar to *T. bardanae* Schrank, *T. dilacerata* Loew, *T. formosa* Loew, *T. kovalevi* V. Korneyev et Kameneva, *T. valida* Loew and *T. zernyi* Hering in the widely brown wing pattern with two dark spots at apices of veins R<sub>4+5</sub> and M (instead of apical fork) and three spots (two large hyaline and one small yellowish) in cell r<sub>1</sub>, differing from all known species by having three brown bar-like crossbands in the posterior half of the wing (diffusely spotted in compared species).

**Key words:** Diptera, Tephritidae, *Tephritis*, new species, *Jurinea*, Turkmenistan, Kazakhstan, Iran.

**Новый вид рода *Tephritis* (Diptera, Tephritidae) из Туркменистана, Казахстана и Ирана.** Корнеев С. В., Мохамадзаде-Намин С. — Описан *Tephritis tridentata* S. Korneyev and Mohamadzade Namin, sp. n. из Юго-Восточного Казахстана, Западного Туркменистана и Южного Ирана, выведенный из соцветий *Jurinea baissunensis* Iljin. Новый вид сходен с *T. bardanae* Schrank, *T. dilacerata* Loew, *T. formosa* Loew, *T. kovalevi* V. Korneyev et Kameneva, *T. valida* Loew и *T. zernyi* Hering по таким признакам, как развитый крыловой рисунок с двумя темными пятнами на вершинах жилок R<sub>4+5</sub> и M (вместо апикальной вилки) и трёх пятен (двух крупных и одного мелкого желтого) в ячейке r<sub>1</sub>, отличаясь от всех видов наличием трех перевязей в задней части крыла, разделенных двумя прозрачными промежуточками с ровными краями (вместо диффузного пятнистого рисунка у сравниваемых видов).

**Ключевые слова:** Diptera, Tephritidae, *Tephritis*, новый вид, *Jurinea*, Туркменистан, Казахстан, Иран.

### Introduction

The genus *Tephritis* Latreille 1804 is the largest tephritid genus occurring in the Holarctic. It belongs to the tribe Tephritini of the subfamily Tephritinae, with about 150 described species (Norrbom et al. 1999). While treating the material deposited in the collection of the Institute of Zoology, NAS of Ukraine, a remarkable new species of the genus *Tephritis* from Kazakhstan and Turkmenistan was found by SVK. At the same time several specimens were collected in Iran by SMN. An illustrated description is provided below.

### Material and methods

The material examined is minuten-pinned on side and deposited in collections of the following institutions:

JAZM — Jalal Afshar Zoological Museum, College of Agriculture, University of Tehran, Karaj, Iran),  
SIZK — Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kyiv, Ukraine).

Morphological terminology follows White et al. (1999).

Information given in square brackets [] is additional and not mentioned on the labels of the specimens.

***Tephritis tridentata* S. Korneyev and Mohamadzade Namin, sp. n.**

Type material. Holotype ♀: **Turkmenistan**: “Kuhitang [Koytendag] mts., 1100 m, Khodzha-Karaul canyon” [37°45.3' N, 66°28.4' E], ex *Jurinea baissunensis*, coll. 16.05.1992 — exit 2.06.1992 (V. Korneyev) (SIZK).

Paratypes: 2 ♂, 2 ♀: **Turkmenistan**: labels as in the holotype (SIZK); 2 ♂, 2 ♀: **Kazakhstan**: [Karatau mts or close], with label “177–77”, without exact locality or host plant [Ivannikov] (SIZK); 2 ♂, **Iran**: Fars Province, 10 km NW Saadat shahr, 39°07.1' N, 33°33.0' E, 2500 m, 15.05.2012 (S. Mohamadzade Namin) (JAZM). Several additional specimens from Kazakhstan almost entirely destroyed by dermestids, are not included in the type series.

**Description.** Head (fig. 1, 4): Yellow, whitish microtrichose, except ocellar spot, distal 2/3 of arista and V-shaped mark on upper part of occiput blackish. Flagellomere 1 yellow. Frontal stripe and face less distinctly microtrichose. Setulae whitish-yellow, brownish on anterior part of gena. Postocular setae and setulae (both longer and shorter) whitish-yellow. Length : height : width ratio = 1 : 1.1 : 1.4. Frons as wide as long. Eye 1.4 times as high as long. First flagellomere of antenna 1.75 times as long as wide. Gena 0.42 times as high as length of flagellomere. Ocellar, medial vertical, anterior orbital and frontal setae black; posterior orbital and lateral vertical setae white to yellowish white. Postocular and



Fig. 1. *Tephritis tridentata* sp. n., holotype ♀: 1 — habitus, left; 2–3 — wings of paratype ♂; 4 — head, left; 5 — head and mesonotum, dorsal; 6–7 — abdomens of paratype ♀, dorsal; 8 — abdomen of paratype ♂, dorsal.

Рис. 1. *Tephritis tridentata* sp. n., голотип ♀: 1 — общий вид, слева; 2–3 — крылья паратипов ♂; 4 — то же, голова, слева; 5 — то же, голова и среднеспинка, сверху; 6–7 — брюшки паратипов ♀, сверху; 8 — брюшко паратипа ♂, сверху.

genal setulae mixed black and white, and setulae on distal part of palp and on pedicel black.

Thorax. (fig. 1, 5) black with narrowly yellow postpronotal lobe, densely white microtrichose. Setae yellowish brown; posterior notopleural and anepimeral seta dark yellow. Setulae white; scutellum yellow with 15–17 white marginal setulae on each side. Squamae white. Halter yellow.

Legs. Yellow, fore femur with 2 rows of white posterodorsal and one row of yellowish brown posteroventral setae; mid and hind leg with brown setae and setulae.

Wing (fig. 1, 1–3) with extensive brown wing pattern with hyaline spots and bars and small pale brown or yellowish spots, of somewhat m-like appearance because of three dark crossbands reaching from wing middle to its posterior margin. Vein  $R_{4+5}$  with 4–5 setulae ventrally. Basal cells hyaline (br brown at pterostigma level), costal cell with dark spot; pterostigma entirely brown. Cell  $r_1$  hyaline at base, brown posterior to pterostigma, with two square hyaline spots, almost all specimens with tiny hyaline spot at the apex. Cell  $r_{2+3}$  hyaline at base, with dark area posterior to pterostigma, usual with 1–3 tiny yellow dots, hyaline spot proximal to crossvein r–m level almost rectangular as long as cell width and 0.5–0.7 times as wide as hyaline spot anterior to it in cell  $r_1$ , additional hyaline spot distal to r–m level large 3 times as wide as proximal spot; dark interval between them almost (0.7–0.9) as wide as proximal hyaline spot. Preapical brown area usually with 1–2, rarely without small round hyaline spots, and 3–5 tiny dots, apex of  $r_{2+3}$  with tiny dark spot on  $R_{4+5}$  vein.

Cell br hyaline in basal half, dark in apical half with two hyaline spots of irregular shape; crossvein r–m bordered by two pairs of narrow yellow spots (usually confluent) at each side. Cell  $r_{4+5}$  brown at base, with hyaline triangular or subrectangular hyaline spot posterior to hyaline spot in  $r_{2+3}$ , preapical dark interval wide with round hyaline spot at middle fused with hyaline spot in m, apex hyaline. Cell m with 2 large hyaline spots, both extending into cell  $r_{4+5}$  and small hyaline spot in dark interval. Cell dm hyaline at base, distal part brown with large pear-like hyaline spot fused with hyaline spot in cell  $cua_1$ . Cell  $cua_1$  mainly brown in basal half and at apex, with two merged hyaline spots, and large hyaline pear-like spot at distal one-third. Posterior half of wing with three brown bar-like crossbands separated by three almost rectilinear hyaline interspaces between them, making dark wing pattern of M-like appearance. Anal lobe hyaline.

Abdomen (fig. 1, 6–8). Dark gray with sides of syntergite 1 + 2 yellow at sides, tergites entirely microtrichose, with white setulae and yellow marginal setae. Oviscape shining yellow, with whitish setae on basal part; as long tergites 1–6 combined (fig. 1, 6–7). Aculeus yellow, 5 times as long as wide and pointed at apex (fig. 2, 5). Eversible membrane with two pairs of taeniae 0.25–0.35 times as long as membrane itself; membrane with dentate scales, moderately large (fig. 2, 4). Two papillose spermathecae as in fig. 2, 3, 5.0–5.2 times as long as wide. Epandrium oval, as in other *Tephritis* species (fig. 2, 1); glans (fig. 2, 2) moderately short and wide, mostly membranous.

Measurements. Female. Body length 7.3–8.5 mm, wing length 5.4–5.8 mm. Aculeus length 2.1–2.3 mm, AL/CL = 1.63. Male. Body length 5.3–5.8 mm, wing length 5.0–5.4 mm.

Variability. One paratype male from Fars with black lyrate pattern on mesonotum and widely yellow pleura; wing pattern with smaller dots slightly differinh in shape and number. Apex of cell  $r_1$  without additional small yellowish or hyaline spot on one or two wings in 2 of examined specimens. Abdomen vary from entirely brown (in one specimen) to entirely yellow (in one specimen); in most Kazakh and Iranian specimens synterhite 1 + 2 mostly yellow.

Host plant: Larvae live in the flower heads of *Jurinea baissunensis* Iljin (in Turkmenistan), on mountain steppes at medium or high altitudes (1000–2500 m), usually at the bottom of shallow valleys; each inflorescence contains 1–3 larvae or pupae.

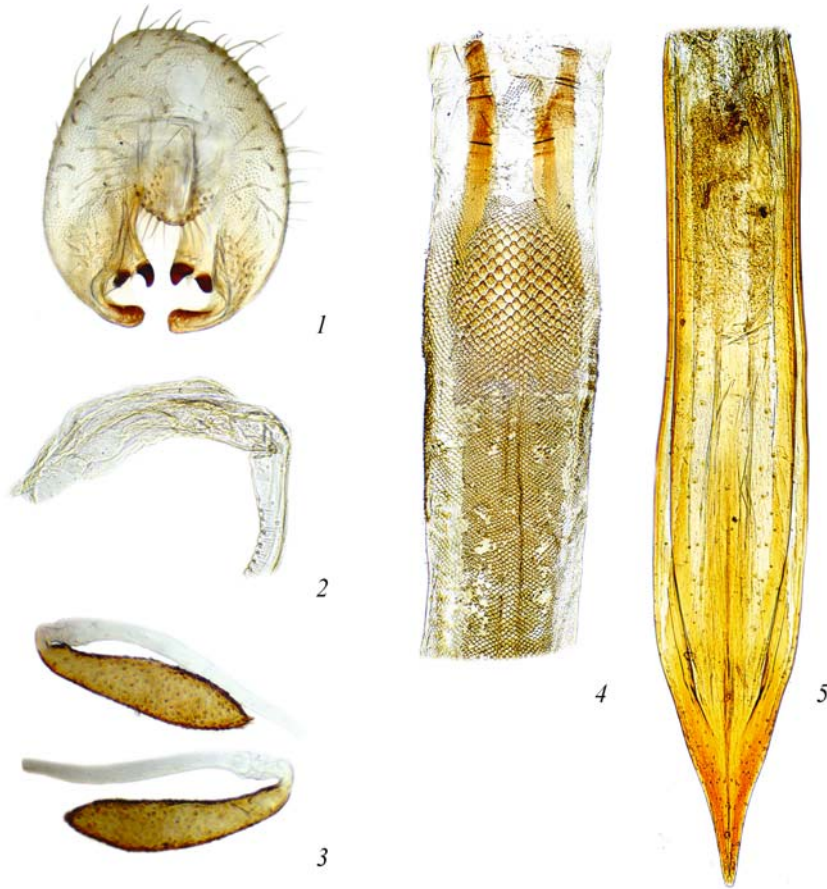


Fig. 2. *Tephritis tridentata* sp. n., paratypes ♂, ♀: 1 — epandrium, posterior; 2 — phallus (basal portion not shown); 3 — spermathecae; 4 — eversible membrane, dorsal; 5 — aculeus, dorsal.

Рис. 2. *Tephritis tridentata* sp. n., паратипы ♂, ♀: 1 — эпандрий, сзади; 2 — фаллос (базальная часть не показана); 3 — сперматеки; 4 — выворачиваемая мембрана, сверху; 5 — акулеус, сверху.

**Diagnosis.** The new species can be differentiated from all known species of the genus by the combination of its brown wing pattern with yellow mottle and white spots in anterior half and three clearly expressed dark crossbands in posterior half, in combination with having dark isolated spots at apices of veins  $R_{4+5}$  and  $M$ , 2 large hyaline and one small yellow spots in cell  $r_1$ , and entirely yellow oviscape. In the keys to Palearctic species of *Tephritis* (Hendel, 1927; Hering, 1944; Richter, 1970; Merz, 1994) it runs to the couplets leading to *T. bardanae*, *T. dilacerata*, *T. formosa*, *T. kovalevi*, *T. valida*, and *T. zernyi*. It clearly differs from all these species by the dark-banded, tridentate pattern of the posterior half of the wing.

**Comments.** The series of specimens from Kazakhstan from the collection of Aleksandr Ivannikov (deceased, formerly Institute of Zoology of Kazakhstan, Almaty) was collected in South-Eastern Kazakhstan just before his death in the car accident in 1977, and had no exact labels (except the number, which has no equivalents in Ivannikov's diary) and contains certain specimens badly damaged by dermestids. Some of them were used for dissection of genitalia.

**Etymology.** The species name is a Latinized adjective, reflecting its tridentate, partly banded wing pattern.

We wish to express our sincere thanks to Valery A. Korneyev (I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kiev, Ukraine) for useful critical comments and assistance on the

early stages of preparation of this manuscript, and to Andrew Whittington (Edinburgh, U. K.) and John T. Smit (Leiden, the Netherlands) for refereeing this paper.

### References

- Merz B.* Diptera: Tephritidae. — Geneve : Schweizerischen Entomologischen Gesellschaft, 1994. — Bd. 10. — 198 S. — (Insecta Helvetica Fauna).
- Hendel F.* 49. Trypetidae / Ed. E. Lindner. Die Fliegen der palaearktischen Region. — Stuttgart : E. Schweizerbart. Verl., 1927. — Bd. 5, Lfg 16–19. — 221 S.
- Hering E. M.* Bestimmungstabelle der Gattung Tephritis Latreille, 1804 // *Siruna Seva.* — 1944. — 5. — P. 17–31.
- Norrbom A. L., Carroll L. E., Thompson F. C. et al.* Systematic database of names / Ed. F. C. Thompson. Fruit fly expert identification system and systematic information database // *Myia.* — 1999 (1998). — 9. — P. 65–299.
- Richter V. A.* [62. Fam. Tephritidae (Trypetidae) — fruit flies] // [Key to insects of the European Territory of the USSR in five volumes. Vol. 5. Diptera, Siphonaptera. Part 2]. — Leningrad : Nauka, 1970. — P. 132–172. — Russian : *Рухмер В. А.* 62. Сем. Тephritidae (Trypetidae) — пестрокрылки // Определитель насекомых европейской части СССР в пяти томах. Т. 5. Двукрылые, блохи. Ч. 2).
- White I. M., Headrick D. H., Norrbom A. L., Carroll L. E.* Glossary // *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior.* / Eds M. Aluja, A. L. Norrbom. — Boca Raton : CRC Press, 1999. — P. 881–924.

Received 12 December 2012

Accepted 21 March 2013