



A new species of the genus *Tshurtshurnella* Kusnezov, 1927 (Hemiptera: Fulgoromorpha: Issidae) from Turkey

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Abstract

Tshurtshurnella sinopei sp. nov. is described after the specimens collected in Sinop, Western Black Sea Region of Turkey, in August 2017. External morphology including male and female genital structures of the new species are described and illustrated.

Key words: Sinop, Turkey, *Tshurtshurnella*, new species

Introduction

Issidae Spinola, 1839 is a large family of the Fulgoromorpha group, with more than 1000 species identified throughout the world (Bourgoin, 2016). Issidae family is examined under 3 tribes as Issini, Haemisphaeriini and Parahira-ciini in modern classification. Issini tribe forms the largest group with 755 species and subspecies of 129 genera. It is a rich group containing pests causing economic harm which are distributed in all biogeographical areas (Gnezdilov 2014). Turkey is considered as one of the main centres for diversification of Issidae taxa, with 102 species and 4 subspecies recorded so far (Gnezdilov *et al.* 2014). The genus *Tshurtshurnella* Kusnezov is one of the largest West Palaearctic genus, with 43 species described, 33 of which are known from Turkey (Gnezdilov 2002; Gnezdilov *et al.* 2014; Gnezdilov & Gjonov 2015; Gnezdilov & Özgen 2018). *Tshurtshurnella* is distinguished by the following characters: forewings without hypocostal plate, hind tibia with two lateral spines, first metatarsomere with 1–2 intermediate spines, aedeagus with enlarged phallotrema and without ventral hooks (Gnezdilov & Gjonov 2015).

From the Black Sea Region of Turkey four species of the genus *Tshurtshurnella* are recorded so far: *T. extrama* Dlabola, 1980, *T. yozgatrica* Kartal, 1985, *T. ramosa* Dlabola, 1982 and *T. despecta* (Linnavuori, 1965) are known (Karadeniz 2008; Önder *et al.* 2011). Below we describe one more species from this region.

Material and Method

The examined material was collected during the daytime in August 2017 with sweeping net over plants in their natural environment in the province of Sinop. The samples collected were taken in insect killing bottles. Then they were put in insect storage packages and brought to laboratory after being labelled. Each sample was taken from insect storage packages, placed in 5% acetic acid and kept for a while in order to make standard insect preparation. Under microscope, genital capsule at the abdomen end of each male and female individual was separated from the body with the help of dissection needle. In the genital capsule, genital structures which have taxonomically reliable characteristics, aedeagus, stylus, pygofer, genital plate, anal tube in males and pregenital sternite VII in females, were separated and preparations were made with the body part of the insect they belonged to. From the materials prepared, shape, size, structure, color, patterning and features of the genital structures were examined under the microscope and they were identified by being compared with other known species of *Tshurtshurnella* genus. Dorsal

and lateral view of the body structure of holotype and paratypes were photographed with Canon Eos 70D camera attached to Zeiss Stemi 2000-C stereomicroscope. Genital structures were drawn by using a drawing attachment attached to Zeiss discovery V-20 stereomicroscope. Morphometric measurements of some body parts of holotype and paratype samples were made. Body length, head width, pronotum length and mesonotum length of male and female samples were measured and average length values of the species were determined. These determined measurement values are given in Table 1. Systematic assessment of the sample prepared according to standard insect preparation, their morphology and terminology of their genital structures were made according to Gnezdilov *et al.* (2014).

Taxonomy

Family Issidae Spinola, 1839

Subfamily Issinae Spinola, 1839

Tribe Issini Spinola, 1839

Genus *Tshurtshurnella* Kusnezov, 1927

Type species *Tshurtshurnella eugeniae* Kusnezov, 1927

Tshurtshurnella sinopei sp. nov.

(Figures 1–2)

Type locality. Türkiye, Sinop, around Boyabat, 41° 33' 57.6" N 34° 48' 51.3" E, 510 m.

Type material. Holotype: ♂, Türkiye, Sinop, around Boyabat, 41° 33' 57.6" N 34° 48' 51.3" E, 510m., leg. R. Tanyeri and Ü. Zeybekoğlu, *Tshurtshurnella sinopei* sp.n.; Paratypes: 8 ♂♂, 5 ♀♀, Türkiye, Sinop, around Boyabat, 41° 33' 57.6" N 34° 48' 51.3" E, 12/08/2017, leg. R. Tanyeri and Ü. Zeybekoğlu (Type material is housed in Ondokuz Mayıs University, Entomology Laboratory).

Description. The body is short and blunt; metope is long, with median carina visible; sublateral carinae are weak and there are oval yellow spots between the median carina and sublateral carinae (Figure 1e). The anterior margin and lateral margins of the metope are slightly curved; the rostrum reaches hind coxae. Pedicel spherical. Coryphe transverse, side angle at the front, width is twice its length, trace of median carina; anterior margin slightly curved. No ocelli. Pronotum twice as wide as long medially, same length with coryphe, median carina visible, anterior margin curved, and posterior margin straight. The lengths of coryphe, pronotum and mesonotum are approximately equal to each other. Fore wings cover the abdomen totally, without hypocoastal plate. Hind tibia with two lateral spines. First metatarsomer with one intermediate spine.

Coloration. General coloration light yellow, transversal dark brown bands on posterior 2/3 of fore wings (Figure 1a–f). Pedicel, flagellum, rostrum and spines on legs are dark brown. Abdomen is straw yellow.

Body length. ♂♂ 3–3,2 mm; ♀♀ 3,2–3,5 mm. The measurements of the body parts are given in Table 1.

Male genitalia. Phallobase straight, tubular, with two pairs of equal sized spines dorsally. The first pair of spines is on the tip of aedeagus, the other pair are on the $\frac{3}{4}$ part of the aedeagus (Figure 2a). Dorsolateral lobes of aedeagal sheath are wide and its margins have tooth in the shape of saw (Figure 2a, b). There are strong, hook shaped, two long spines with an outward facing tip on these lobes (Figure 2b). Ventral lobe of aedeagal sheath narrows, reaching phallosome. Stylus is narrow at the tip, wide at the basal, dorsal margin is ovalish, ventral margin is wavy (Figure 2d). Anal tube is oval, narrows to the tip, in the middle part its width is about half of its length (Figure 2e).

Female genitalia. Anterior margin of pregenital sternite VII is concave and slightly protruding at median. Posterior margin is convex (Figure 2g). Female anal tube is narrow at the basal and elliptical towards the tip (Figure 2f).

Habitat. The materials were collected from the open area with Graminae and Compositae samples in the undergrowth of the mixed forest area.

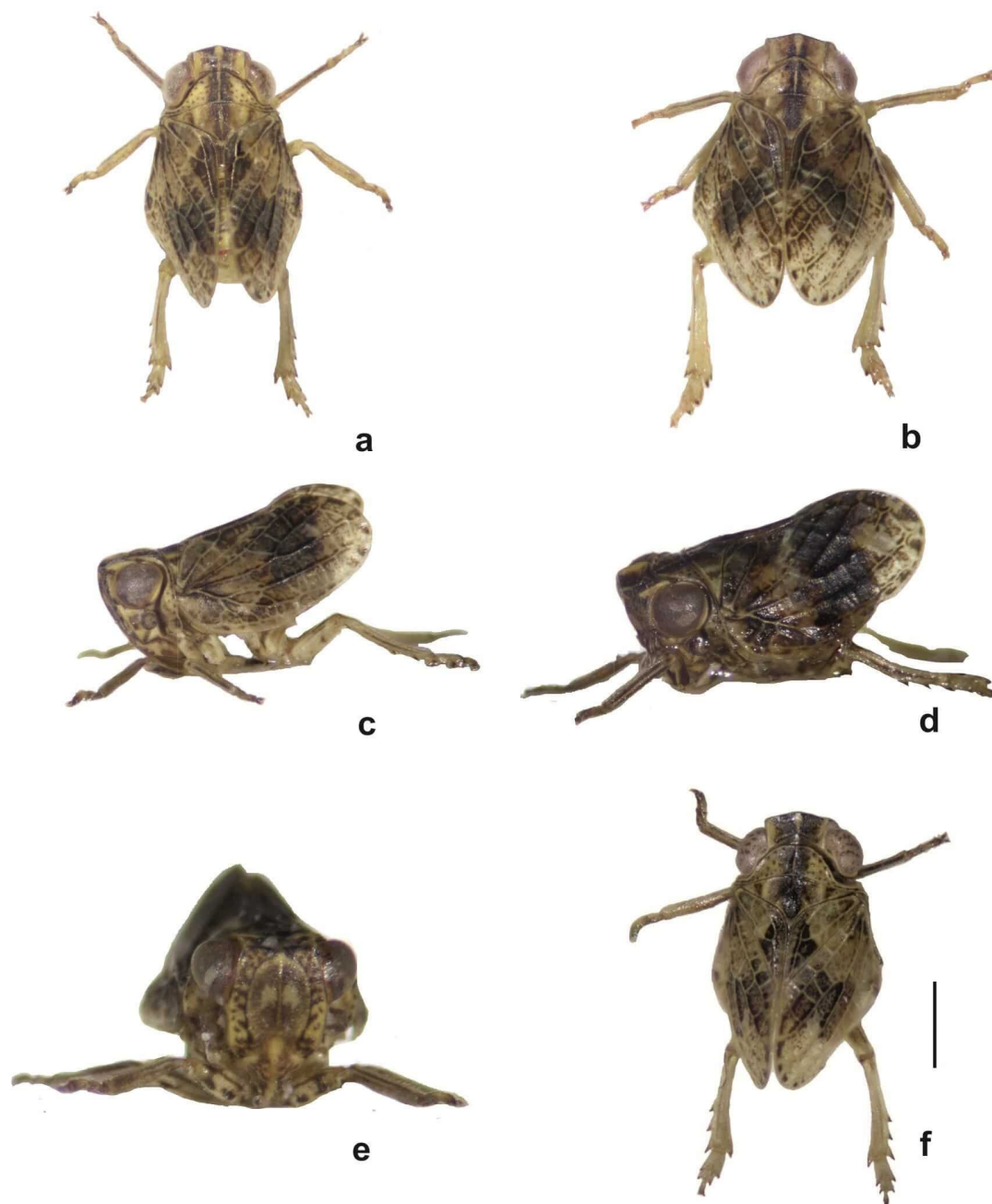


FIGURE 1. *Tshurtshurnella sinopei* sp. nov. (a) Male, holotype (dorsal view); (b) female, paratype (dorsal view); (c) male, holotype (lateral view); (d) female (lateral view); (e) male, holotype (frontal view); (f) male, paratype (dorsal view). Scale: 1 mm.

Diagnosis. *Tshurtshurnella sinopei* sp. nov. closely resembles *T. yozgatica* Kartal, 1985 and *T. curtulum* Gnezdilov et Oezgen, 2018 by its genital characters. However, while there are two pairs of spines at the dorsal margin of *T. sinopei* sp. nov., there is one pair of spines at the dorsal of aedeagus in *T. yozgatica* (Kartal 1985). Although *T. sinopei* sp. nov. resembles *T. curtulum* for having two pairs of spines at the dorsal margin, it is different from this species for dorsolateral margins of aedeagal sheath having saw-tooth and the tip of male anal tube not being pointed. In *T. curtulum*, dorsolateral margin of aedeagal sheath is straight and not saw toothed and the tip of male anal tube is not wide, it is visibly pointed (Gnezdilov & Özgen 2018, fig. 30).

Etymology. The name was given with reference to the old name of the city of Sinop (Turkey), where the samples were collected.

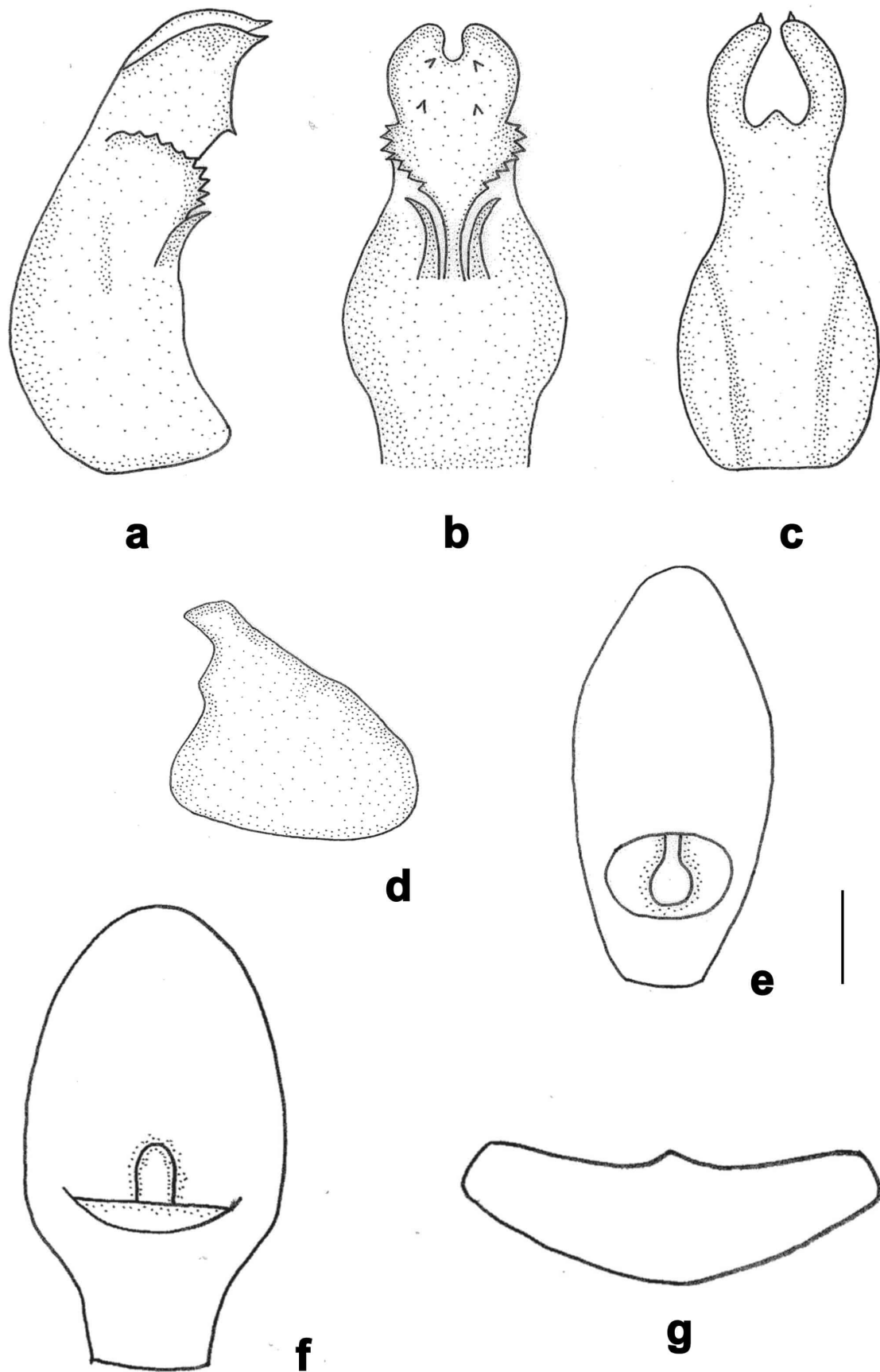


FIGURE 2. *Tshurtshurnella sinopei* sp. nov, genital structures. (a) Aedeagus (lateral view); (b) aedeagus (dorsal view); (c) aedeagus (ventral view); (d) stylus (lateral view); (e) anal tube of male (dorsal view); (f) anal tube of female (dorsal view); (g) VII. abdominal sternit of female (ventral view). Scale: 0,1 mm.

TABLE 1. Measurements of body parts of *Tshurtshurnella sinopei* sp. nov. (mm) (N=Number of individuals).

Body parts (mm)	Holotype (male)	Male (N=8)			Paratypes Female (N=5)		
		Min.	Max.	Ave.	Min.	Max.	Ave.
Body length	3,1	3	3,2	3,02	3,2	3,5	3,24
Head width	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Vertex length	0,25	0,25	0,25	0,25	0,3	0,3	0,3
Pronotum length	0,3	0,3	0,3	0,3	0,35	0,35	0,35
Mesonotum length	0,6	0,6	0,6	0,6	0,65	0,65	0,65

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