

## New species of the genus *Tshurtshurnella* Kusnezov, 1927 (Homoptera: Cicadina: Issidae) from Turkey and Lebanon

### Новые виды рода *Tshurtshurnella* Kusnezov, 1927 (Homoptera: Cicadina: Issidae) из Турции и Ливана

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КЛЮЧЕВЫЕ СЛОВА: Cicadina, Issidae, *Tshurtshurnella*, новые виды.

ABSTRACT. Four new species of the genus *Tshurtshurnella* Kusnezov, 1927 are described: *Tsh. hani* sp.n. from Lebanon; *Tsh. uvarovi* sp.n., *Tsh. mysica* sp.n., and *Tsh. carica* sp.n. from Turkey. *Tsh. eugeniae* Kusnezov, 1927 is redescribed; this species and *Tsh. rhombica* Dlabola, 1982 are recorded from new localities in the Ukraine and Turkey, respectively.

РЕЗЮМЕ. Описаны 4 новых вида рода *Tshurtshurnella* Kusnezov, 1927: *Tsh. hani* sp.n. из Ливана, *Tsh. uvarovi* sp.n., *Tsh. mysica* sp.n. и *Tsh. carica* sp.n. из Турции. Переописан *Tsh. eugeniae* Kusnezov, 1927; приведены новые данные по распространению указанного вида на Украине и *Tsh. rhombica* Dlabola, 1982 в Турции соответственно.

#### Introduction

The genus *Tshurtshurnella* Kusnezov, 1927 comprises 38 species, including species described below. The type species of the genus, *Tshurtshurnella eugeniae* Kusnezov, 1927, is distributed in the Ukraine [Kusnezov, 1927; Logvinenko, 1975]. Other members of the genus are distributed in the East Mediterranean: 27 species, including new ones, in Turkey [Linnavuori, 1965; Dlabola, 1979, 1980, 1981, 1982, 1983, 1985, 1986; Kartal, 1985a, 1985b, 1985c, 1985d]; 5 species in Greece [Dlabola, 1979; Drosopoulos, 1990]; 2 species in Cyprus [Lindberg, 1948; Dlabola, 1975]; 2 species in Italy [Kirschbaum, 1868; Linnavuori, 1962, 1965]; 1 species in Israel [Linnavuori, 1962]; 1 species in Syria [Dlabola, 1987]; 1 species in Lebanon; 1 species in Iraq [Dlabola, 1979].

The material examined is deposited in the following collections: CHAN — collection of Dr. Hani Abdul-Nour (Jdeidet-al-Matn, Lebanon); ZMMU — Zoological Museum of Moscow State University (Moscow, Russia); ZIN — Zoological Institute of Russian Academy of Sciences (St. Petersburg, Russia).

#### Systematic part

The genus *Tshurtshurnella* is distinguished by the combination of the following features: fore wings without hypocostal plate; R and M bifurcate; CuA simple; hind wings rudimentary; hind tibia with 2 lateral teeth; apex of metatarsomere I with 1 intermediate setae in apical row; dorso-lateral lobes of penis phallobase with teeth or processes; aedeagus without hooks; apical lobes (“apical processes” in my previous papers) of aedeagus with enlarged apices (lateral view); styles massive, with weakly differentiated capitulum, straight hind margin, and widely rounded caudo-dorsal angle.

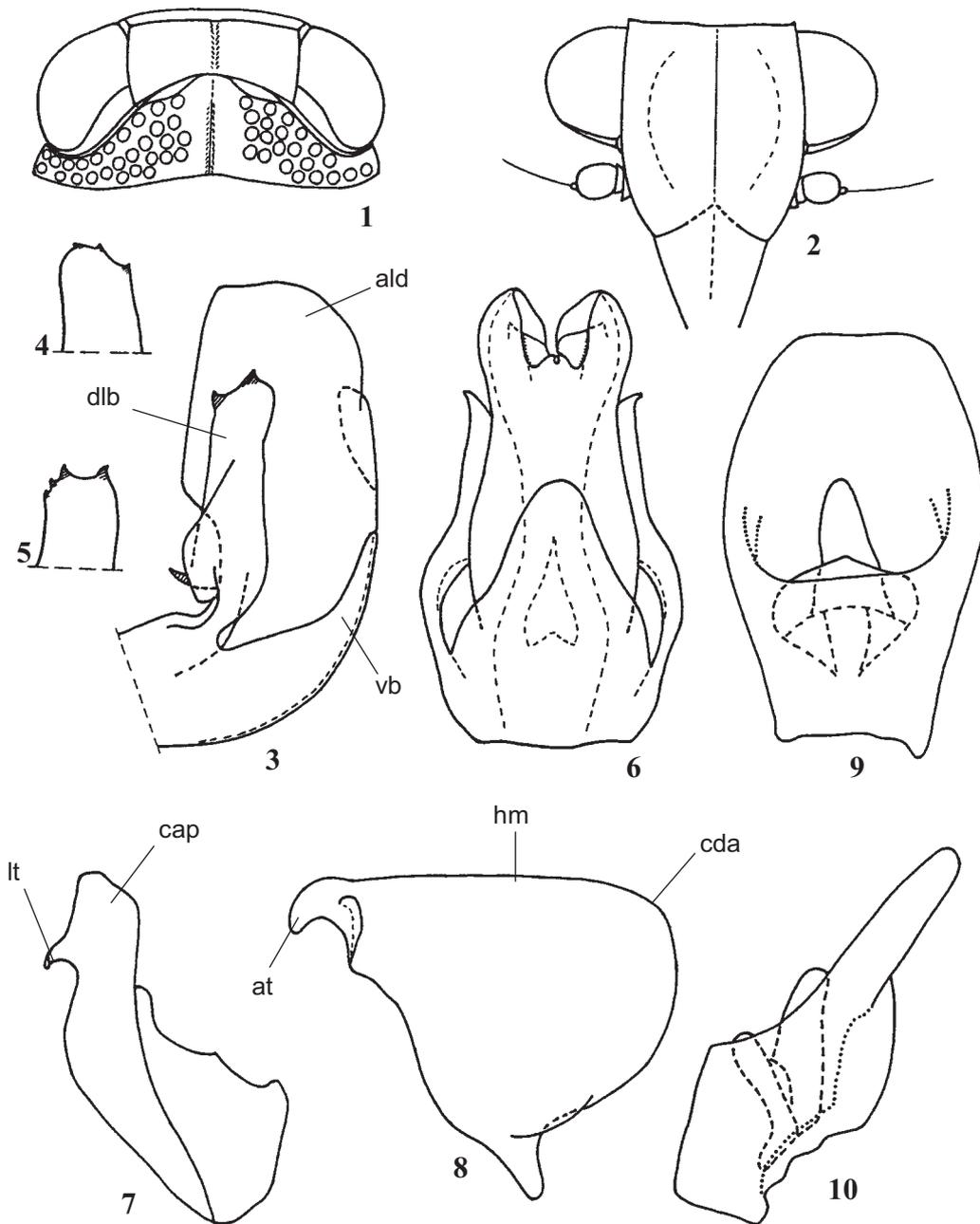
*Tshurtshurnella eugeniae* Kusnezov, 1927.  
Figs 1–10.

MATERIAL. Ukraine: Crimea, Belogorsky Distr., Annovka Vill., 21.VII.1926, motley grass steppe (V. Kusnezov) (syntypes, not dissected) (ZIN); Crimea, Belogorsky Distr., Belaya Skala Vill., 23.VI.1963, steppe slopes (V.N. Logvinenko) (ZIN); Crimea, Alupka, 30.IX.1936 (N. Filippov) (new locality) (ZMMU); Donetsk Prov., 60 km NW of Donetsk, near Svyatogorskaya, Nyrkova Vyemka, 10.VIII.1940, steppe (Arnoldi) (new locality) (ZMMU).

DESCRIPTION. Metope slightly elongate (about 1.2 times as long as wide), with distinct, but weak apically, median keel, and weak sublateral keels. Coryphe transverse (about 3 times as wide as long), with median groove or smooth keel, anterior and lateral margins of coryphe keel-shaped, posterior margin concave. Pronotum about 1.8 times as long as coryphe, with distinct sensory pits. Anterior margin of pronotum elevated on both sides from median line. Median pronotal keel distinct, weak anteriorly. Scutellum of mesonotum with 2 lateral keels. Fore wings slightly narrowed to apex. Apex of hind tibia with 8–10 socle setae (including 6–8 setae in intermediate row).

General colour of body yellow-brown. Teeth and socle setae of hind legs dark brown.

Male genitalia. Anal tube elongate, narrowed at the base and near the slightly concave apex (dorsal view), ventral surface not protruding (lateral view). Anal column relatively



Figs. 1–10. *Tshurtsburnella eugeniae*. 1, 2 — head of female (1 — dorsal view; 2 — ventral view) (Crimea, Annovka, syntype); 3 — penis, lateral view (Crimea, Belaya Skala); 4 — apex of dorso-lateral lobe of the penis phallobase (the same specimen, right lobe); 5 — apex of dorso-lateral lobe of the penis phallobase (Donetsk Area); 6 — penis, ventral view (Crimea, Belaya Skala); 7, 8 — stylus (7 — dorsal view; 8 — lateral view) (Crimea, Belaya Skala); 9, 10 — anal tube of male (9 — dorsal view; 10 — lateral view) (Crimea, Belaya Skala); ald — apical lobes of aedeagus; at — apical tooth of style; cap — capitulum of style; cda — caudo-dorsal angle of style; dlb — dorso-lateral lobes of the penis phallobase; hm — hind margin of style; lt — lateral tooth (“subapical tooth” in my previous papers) of style; vb — ventral lobe of the penis phallobase.

Рис. 1–10. *Tshurtsburnella eugeniae*. 1, 2 — голова самки (1 — вид сверху; 2 — вид снизу) (Крым, Анновка, syntype); 3 — penis, вид сбоку (Крым, Белая Скала); 4 — вершина дорсо-латеральной лопасти фаллобазы пениса (тот же экземпляр, правая лопасть); 5 — вершина дорсо-латеральной лопасти фаллобазы пениса (Донецкая обл.); 6 — penis, вид снизу (Крым, Белая Скала); 7, 8 — стилус (7 — вид сверху; 8 — вид сбоку) (Крым, Белая Скала); 9, 10 — анальная трубка самца (9 — вид сверху; 10 — вид сбоку) (Крым, Белая Скала); ald — апикальные лопасти эдеагуса; at — апикальный зубец стилуса; cap — головка стилуса; cda — каудо-дорсальный угол стилуса; dlb — дорсо-латеральные лопасти фаллобазы пениса; hm — задний край стилуса; lt — латеральный зубец стилуса (“субапикальный зубец” в моих предыдущих работах); vb — вентральная лопасть фаллобазы пениса.

long (1/3–1/4 of anal tube). Dorso-lateral lobes of the penis phallobase relatively narrow, long, but not reaching the apex of aedeagus (lateral view). Each lobe with 2–4 apical marginal teeth, and a tooth proximally (lateral view). Ventral lobe of the penis phallobase relatively wide, narrowed to apex (ventral view). Apical lobes of aedeagus without teeth. Phallostreme ventrally with marginal lobe notched at apex. Style with wide capitulum, narrowed to apex (dorsal view); apical tooth blunt, directed to the base of style (lateral view).

Body length: males 2.8–3.6 mm; females 3.1–3.4 mm.

REMARKS. *Tshurtshurnella eugeniae* differs from other species of the genus in the presence of sensory pits on pronotum in imago. The records of *Tsh. eugeniae* from Kazakhstan [Logvinenko, 1975] are dubious and, perhaps, based on misidentification.

*Tshurtshurnella hani* sp.n.

Figs 11–18.

MATERIAL. Holotype, ♂, Lebanon, Jurd Aaqoura (Jbeil), 1800 m, 6.IX.1987, on *Astragalus* sp. (ZIN). Paratypes, 1 ♂ (CHAN), 2 ♀♀ (ZIN and CHAN), same locality (all leg. H. Abdul-Nour).

DESCRIPTION. Metope elongate (about 1.4 times as long as wide), with distinct median keel and weak sublateral keels. Coryphe transverse (about 3 times as wide as long), its anterior margin weakly protruding at obtuse angle, posterior margin concave. Pronotum about 1.8 times as long as coryphe, with distinct median keel. Scutellum of mesonotum with 2 lateral keels. Apex of hind tibia with 8–10 socle setae (including 6–8 setae in intermediate row).

General colour of body yellowish light brown. Metope with infuscate maculae marking places of sensory pits. Coryphe, pronotum, and scutellum with a wide longitudinal dark brown stripe, subdivided in two by a light yellow median stripe (this pattern indistinct in weakly pigmented specimens). Inner margin of fore wings and hind margin of apical cells darkened (in normally pigmented specimens). Fore wings with 4 brown dots (in normally pigmented specimens): one in Costal area near the middle of the wing; two between R and M; one near the base of wing between M and CuA. Teeth and socle setae of hind legs darkened.

Male genitalia. Anal tube elongate, narrowed at the base and near the obtuse apex (dorsal view), ventral surface not protruding (lateral view). Anal column relatively long (1/3–1/4 of anal tube). Dorso-lateral lobes of the penis phallobase relatively narrow, long, concave ventrally, not reaching a little the apex of aedeagus (lateral view). Each lobe with 2–3 apical marginal teeth, vertical row of 7–8 teeth, a long pointed lateral process, directed to ventral surface of the penis, and a long tooth below lateral process proximally (lateral view). Each lateral process with 3–5 teeth dorsally and some denticles laterally. Ventral lobe of the penis phallobase relatively narrow, long (ventral view). Each apical lobe of aedeagus with a small apical tooth situated over apices of dorso-lateral lobes (lateral view). Phallostreme ventrally with marginal lobe. Style with wide capitulum, not narrowed to apex (dorsal view); apical tooth pointed, directed to the base of style (lateral view).

Body length: males 3.5–3.6 mm; females 3.8 mm.

ETYMOLOGY. The species name is derived from the first name of Dr. Hani Abdul-Nour.

REMARKS. *Tshurtshurnella hani* sp.n. is closely related in the structure of the male genitalia to *Tsh. cappadocica* Dlabola, 1981 and *Tsh. yozgatica* Kartal, 1985, but distin-

guished by the relatively narrow dorso-lateral lobes of the penis phallobase and presence of teeth on lateral processes of lobes.

*Tshurtshurnella uvarovi* sp.n.

Figs 19–26.

MATERIAL. Holotype, ♂, Asia Minor [Turkey], Manisa Prov., between Salihli and Borlu, 2.VIII.1931 (B.P. Uvarov) (ZMMU).

DESCRIPTION. Metope as wide as long, with distinct median and sublateral keels. Median keel weak apically, continued on postclypeus. Coryphe transverse (more than 3 times as wide as long), with weakly convex middle part. Anterior margin of coryphe arched, weakly protruding, posterior margin concave. Pronotum 1.5 times as long as coryphe, without median keel. Scutellum of mesonotum with 2 lateral keels. Costal area of left fore wing with false vein, running from Costal vein to the wing middle. Apex of hind tibia with 7 socle setae (including 5 setae in intermediate row).

General colour of body yellowish light brown. Teeth and socle setae of hind legs darkened.

Male genitalia. Anal tube elongate, narrowed at the base and near the obtuse apex (dorsal view), ventral surface not protruding (lateral view). Anal column relatively long (about 1/3 of anal tube). Dorso-lateral lobes of the penis phallobase relatively wide, short, not reaching the apex of the aedeagus (lateral view). Each lobe with marginal row of 11–12 teeth dorsally and a long pointed lateral process directed to ventral surface of the penis. Ventral lobe of the penis phallobase relatively wide, long, narrowed to apex. Phallostreme ventrally with marginal lobe. Apical lobes of aedeagus without teeth (lateral view). Style with wide capitulum, abruptly narrowed apically (dorsal view); apical tooth pointed, directed to the base of style (lateral view).

Body length 3.7 mm.

ETYMOLOGY. The species name is derived from the family name of famous orthopterist B.P. Uvarov.

REMARKS. *Tshurtshurnella uvarovi* sp.n. is distinguished by the wide and short dorso-lateral lobes of the penis phallobase.

*Tshurtshurnella mysica* sp.n.

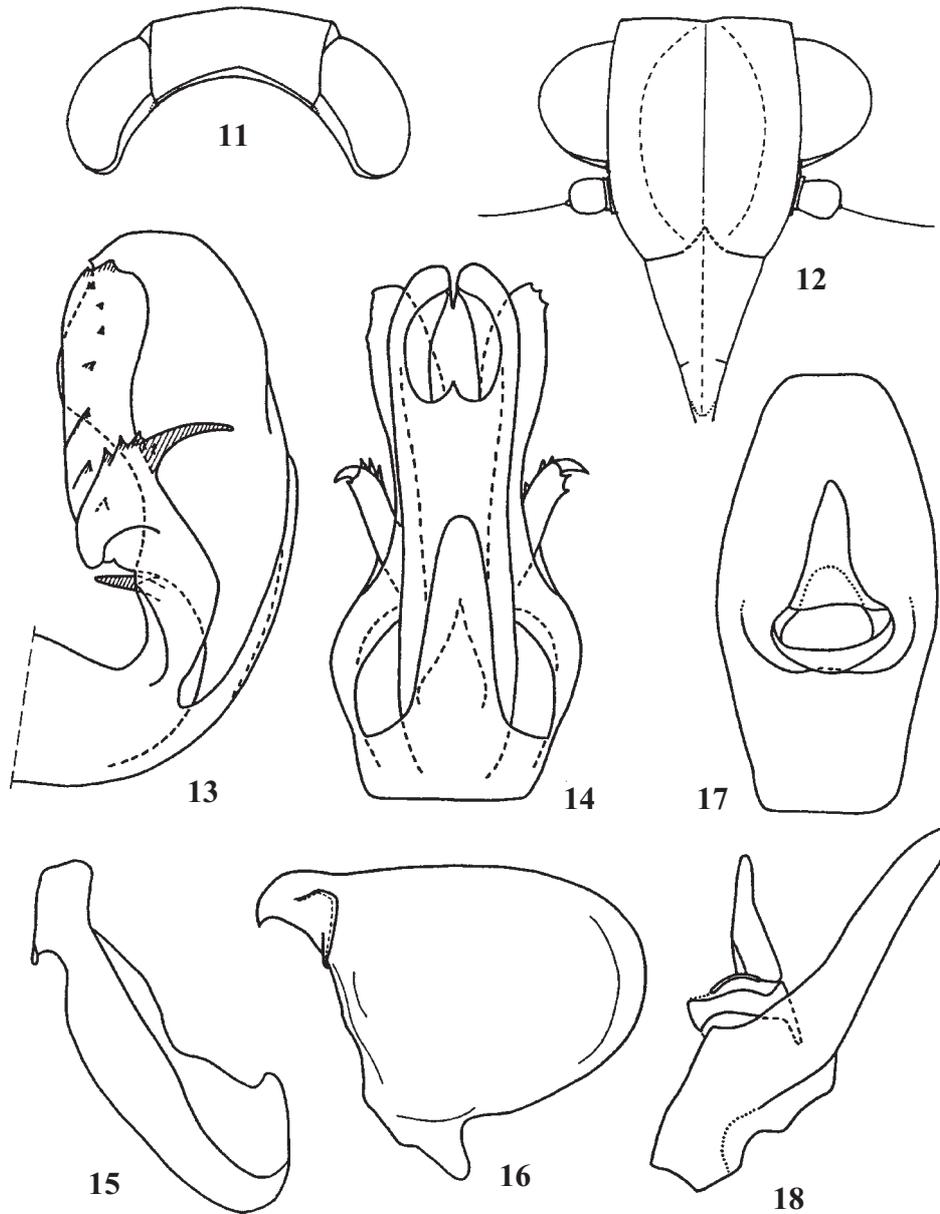
Figs 27–34.

MATERIAL. Holotype, ♂, Asia Minor [Turkey], Demirchi, S of Simav, ~ 3000 ft., 3–4.VIII.1931 (B.P. Uvarov) (ZMMU).

DESCRIPTION. Metope about as wide as long, with distinct median and sublateral keels. Median keel continued on postclypeus. Coryphe transverse (3 times as wide as long), its anterior margin arched, weakly protruding, posterior margin concave. Pronotum 1.3 times as long as coryphe, with distinct median keel. Apex of hind tibia with 10 socle setae (including 8 setae in intermediate row).

General colour of body light brown. Metope with a pair of light spots situated by sides of median keel apically; infuscate maculae marking places of sensory pits. Postclypeus with transverse brown stripes and light median line. Profemur, mesofemur, metafemur, protibia, and mesotibia with longitudinal brown stripes. Teeth and socle setae of hind legs darkened.

Male genitalia. Anal tube elongate, narrowed at the base and near the obtuse apex (dorsal view), ventral surface not protruding (lateral view). Anal column relatively short (1/4–1/5 of anal tube). Dorso-lateral lobes of the penis phallobase narrow basally, but enlarged distally, long, considerably



Figs. 11–18. *Tshurtshurnella bani* sp.n. 11, 12 — male head (11 — dorsal view; 12 — ventral view); 13, 14 — penis (13 — lateral view; 14 — ventral view); 15, 16 — stylus (15 — dorsal view; 16 — lateral view); 17, 18 — male anal tube (17 — dorsal view; 18 — lateral view).

Рис. 11–18. *Tshurtshurnella bani* sp.n. 11, 12 — голова самца (11 — вид сверху; 12 — вид снизу); 13, 14 — пенис (13 — вид сбоку; 14 — вид снизу); 15, 16 — стилус (15 — вид сверху; 16 — вид сбоку); 17, 18 — анальная трубка самца (17 — вид сверху; 18 — вид сбоку).

protruding over the apex of aedeagus (lateral view). Each lobe with vertical row of 10 teeth, reaching to apex marginal row of 7 teeth, and a long pointed lateral process, directed to ventral surface of the penis (lateral view). Ventral lobe of the penis phallobase very short. Each apical lobe of aedeagus with a large apical tooth (lateral view). Ventral margin of phallorema incised, wedge-shaped. Style with wide capitulum, not narrowed to apex (dorsal view); apical tooth pointed, directed to the base of style (lateral view).

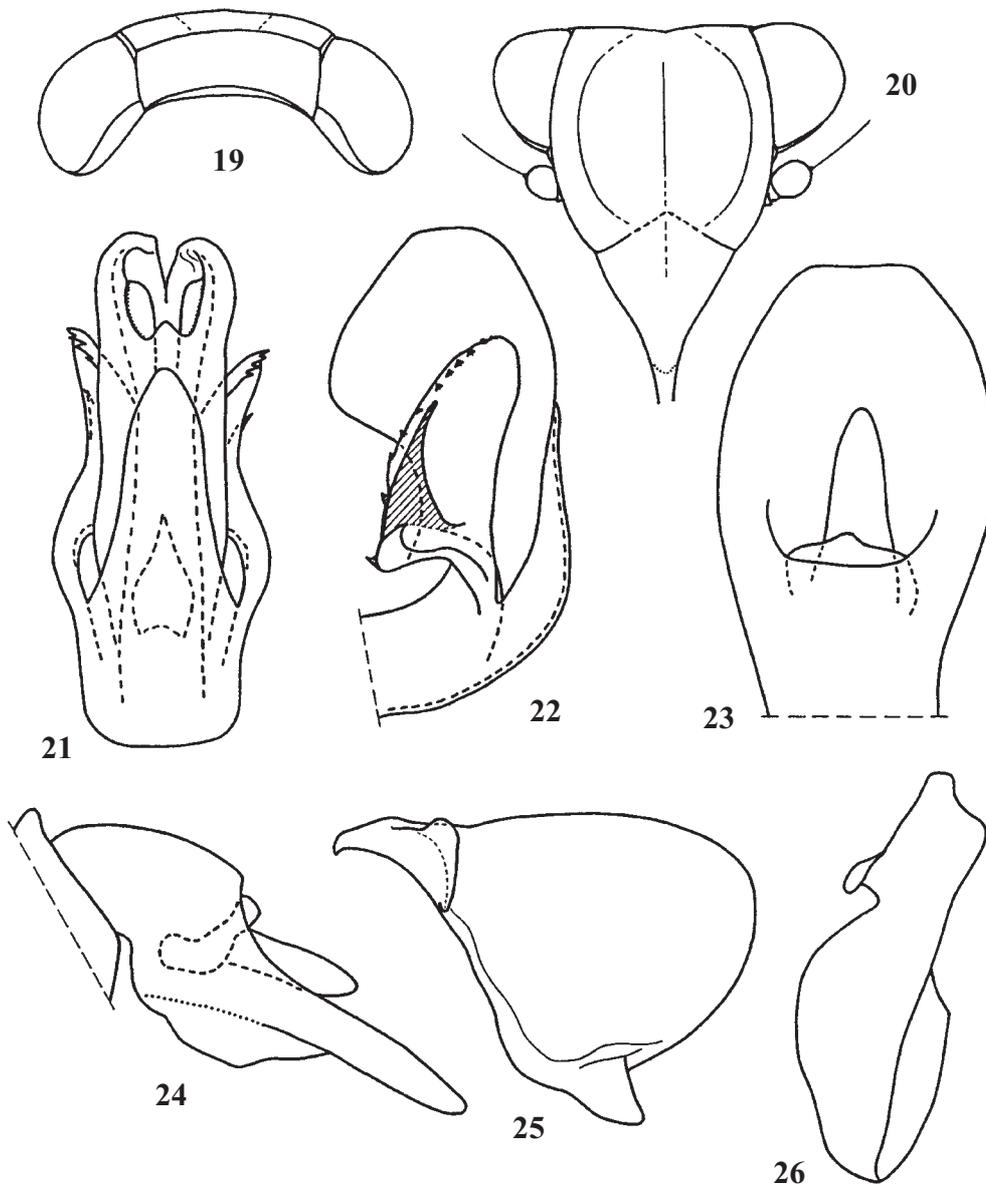
Body length 4.4 mm.

ETYMOLOGY. The species name is derived from the Greek name of the province Mysia in Asia Minor.

REMARKS. *Tshurtshurnella mysica* sp.n. is related in the structure of the male genitalia to *Tsh. cappadocica* Dlabola, 1981, but distinguished by the very short ventral lobe of the penis phallobase and incised, wedge-shaped ventral margin of phallorema.

*Tshurtshurnella carica* sp.n.  
Figs 35–42.

MATERIAL. Holotype, ♂, Asia Minor [Turkey], Demirchi, S of Simav, - 3000 ft, 3–4.VIII.1931 (B.P. Uvarov) (ZMMU).



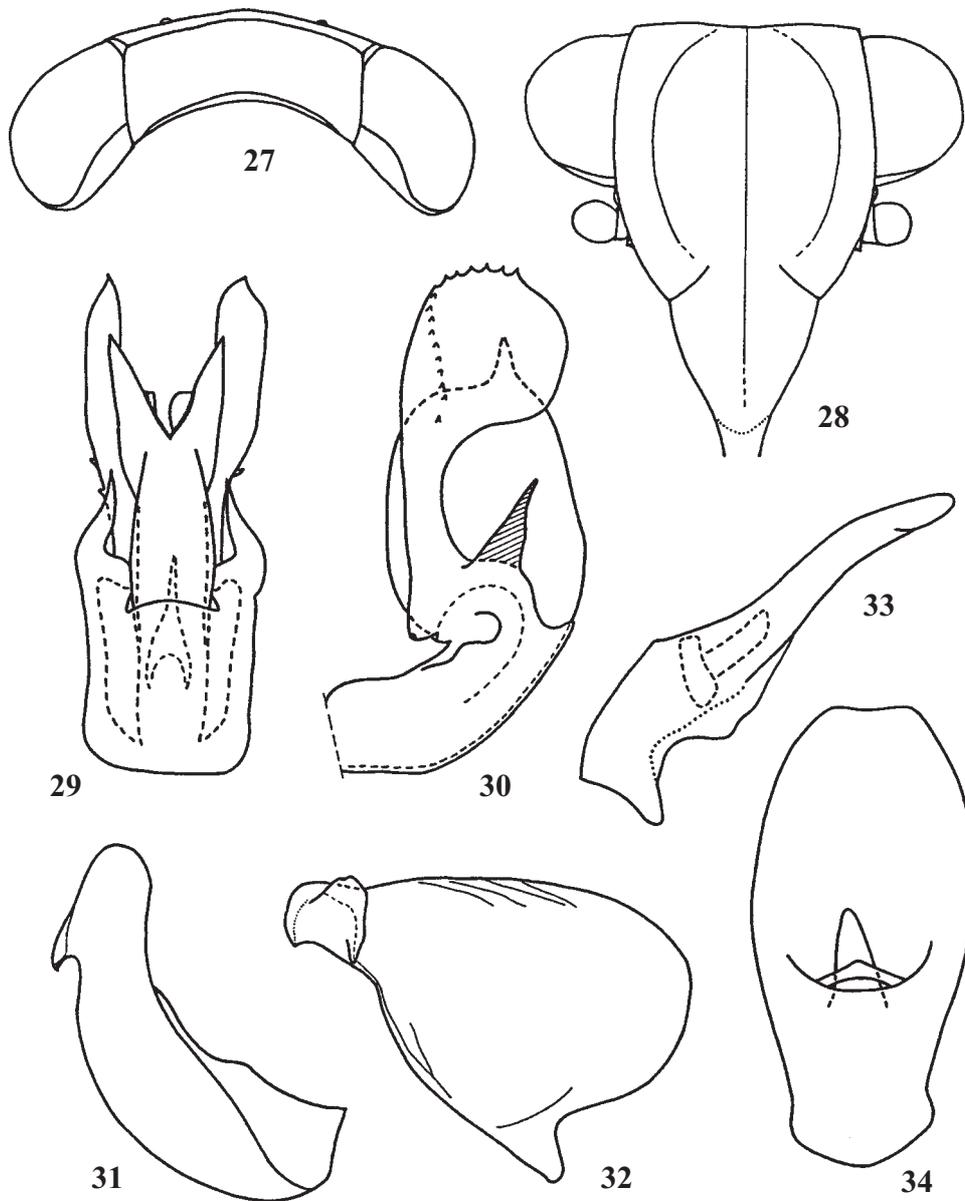
Figs. 19–26. *Tshurtshurnella uvarovi* sp.n. 19, 20 — head (19 — dorsal view; 20 — ventral view); 21, 22 — penis (21 — ventral view; 22 — lateral view); 23, 24 — anal tube (23 — dorsal view; 24 — lateral view); 25, 26 — stylus (25 — lateral view; 26 — dorsal view).

Рис. 19–26. *Tshurtshurnella uvarovi* sp.n. 19, 20 — голова (19 — вид сверху; 20 — вид снизу); 21, 22 — пенис (21 — вид снизу; 22 — вид сбоку); 23, 24 — анальная трубка (23 — вид сверху; 24 — вид сбоку); 25, 26 — стилус (25 — вид сбоку; 26 — вид сверху).

**DESCRIPTION.** Metope slightly elongate (about 1.2 times as long as wide), with median keel, obliterated distally, and weak sublateral keels. Coryphe transverse (about 2 times as wide as long), with middle part convex, hump-like (dorsal view). Anterior margin of coryphe strongly arched, posterior margin concave (dorsal view). Pronotum about as long as coryphe, with distinct median keel. Scutellum of mesonotum with 2 lateral keels. Apex of hind tibia with 9 socle setae (including 7 setae in intermediate row).

General colour of body yellowish light brown. Teeth and socle setae of hind legs darkened.

**Male genitalia.** Anal tube narrowed at the base, enlarged apically, with truncate, weakly concave apex (dorsal view) and strongly protruding ventral surface (lateral view). Anal column short (~1/5 of anal tube). Dorso-lateral lobes of the penis phallobase wide, short, not reaching the apex of the aedeagus, concave ventrally near the upper margin (lateral view). Each lobe with 3 marginal teeth dorsally, long pointed lateral process, directed to ventral surface of the penis (right lateral process have also 1 tooth at the base, invisible in figure). Apical lobes of the aedeagus inflated before apex, each lobe with a small apical tooth (lateral view). Phallostreme



Figs. 27–34. *Tshurtshurnella mysica* sp.n. 27, 28 — head (27 — dorsal view; 28 — ventral view); 29, 30 — penis (29 — ventral view; 30 — lateral view); 31, 32 — stylus (31 — dorsal view; 32 — lateral view); 33, 34 — anal tube (33 — lateral view; 34 — dorsal view).

Рис. 27–34. *Tshurtshurnella mysica* sp.n. 27, 28 — голова (27 — вид сверху; 28 — вид снизу); 29, 30 — пенис (29 — вид снизу; 30 — вид сбоку); 31, 32 — стилус (31 — вид сверху; 32 — вид сбоку); 33, 34 — анальная трубка (33 — вид сбоку; 34 — вид сверху).

ventrally with marginal lobe notched at apex. Style with wide capitulum, not narrowed to apex (dorsal view); apical tooth pointed, directed to the base of style (lateral view).

Body length 4.0 mm.

ETYMOLOGY. The species name is derived from the Greek name of the province Caria in Asia Minor.

REMARKS. *Tshurtshurnella carica* sp.n. is distinguished by the inflated subapically apical lobes of aedeagus and strongly protruding ventral surface of anal tube.

*Tshurtshurnella rhombica* Dlabola, 1982.

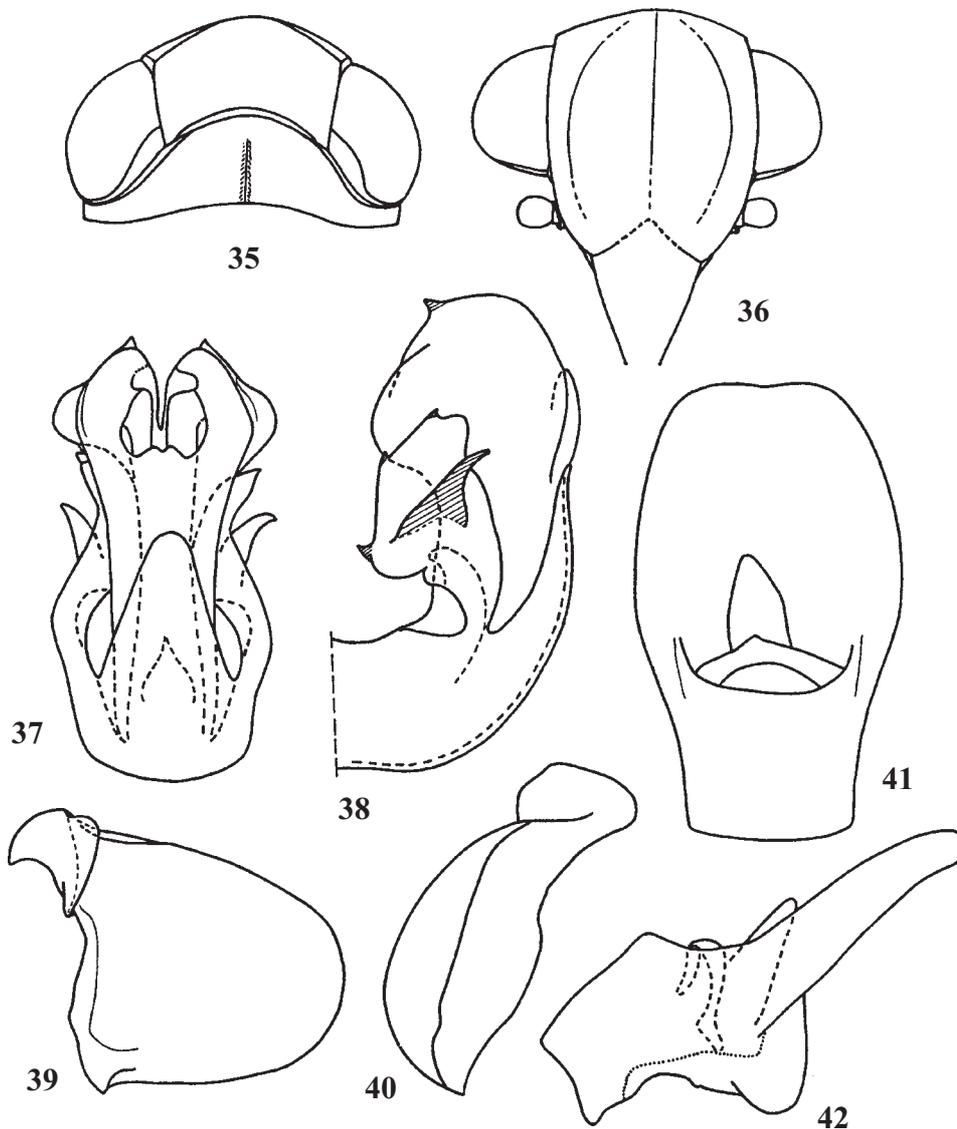
The species was recorded in Turkey from Pinarbaşı (Dlabola, 1982) and Çiftelhan (Kartal, 1985b).

NEW LOCALITY. Turkey, between Ankara and Tuz-Göl, 14.VIII.1931 (B.P. Ulvarov).

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Figs. 35–42. *Tshurtshurnella carica* sp.n. 35, 36 — head (35 — dorsal view; 36 — ventral view); 37, 38 — penis (37 — ventral view; 38 — lateral view); 39, 40 — stylus (39 — lateral view; 40 — dorsal view); 41, 42 — anal tube (41 — dorsal view; 42 — lateral view).

Рис. 35–42. *Tshurtshurnella carica* sp.n. 35, 36 — голова (35 — вид сверху; 36 — вид снизу); 37, 38 — пенис (37 — вид снизу; 38 — вид сбоку); 39, 40 — стилус (39 — вид сбоку; 40 — вид сверху); 41, 42 — анальная трубка (41 — вид сверху; 42 — вид сбоку).

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