

## A new genus and new aphids species of subtribe Macrosiphina (Homoptera, Aphidinae) from Kazakhstan

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We have described 2 new species which have been collected in the previous years in the desert zone of Kazakhstan. New species belong to new genus from Macrosiphina subtribe.

The following abbreviations are used in the text: S. - southern, C. - central, N. - northern, W. - western, E. - eastern, mts.- mountains, des. - Desert, r. - river, ran. - Mass range, reg. - region, t. - town, a. s. l.- the height above the sea level, sur. - surroundings, ap. v. f. - apterous viviparous female, al. v. f. - alate viviparous female, b. - body, ant. - antennae, siph. - siphunculi, c. - cauda, u. r. s.- ultimate rostral segment, 2 s. h. t.-second segment of hind tarsus.

All dimensions are given in millimeters.

Holotypes and paratypes of described species are deposited in the collection of the Institute of Zoology (Almaty, Kazakhstan). Part of paratypes is kept in the Zoological Institute of RAN (Saint-Peterburg, Russia).

### *Turanoleucon* Kadyrbekov, gen. n.

*T. mityaevi* Kadyrbekov, sp. n., type species.

GENERIC DIAGNOSIS. Body is egg-shaped, blackish. Cuticle is thick, largely reticulated. Board of cells with small cogs. Frontal groove is broad, 0.10-0.16 of the distance between apices of antennal tubercles. Antennal tubercles are low and diverged. Middle frontal tubercle is large, square and approximately equal to the antennal ones. Antennae are six-segmented, shorter than the body of the apterous and alate viviparous females in norm. Processus terminalis is short, 3.0-4.3 of the base of 6<sup>th</sup> segment. Protuberant secondary rhinaria are developed on the 3<sup>rd</sup> segment in apterous (9-47) and alate (47-77) viviparous females. Rostrum is very long, reaches the 4<sup>th</sup> abdominal sternite. Its ultimate rostral segment is fine, elongated, 1.8-2.2 of the second segment of hind tarsus, with 9-10 accessory hairs. Siphunculi are cylindrical with distinct flanges, approximately 2 and more of cauda length. Reticulated zone is developed on the 0.35-0.45 of their length. Cauda is finger-shaped with rounded apex, as the *Macrosiphoniella*. Dorsal hairs are thick, shovel-shaped, are developed on the large sclerites. Spiracles are not large, rounded on the thoracic segments and haricot-shaped on the abdominal segments. Ante- and postsiphuncular sclerites are absent. Genital plate is broad oval with 6-10 hairs on the disc. Single large gentle process is developed on the anal plate. First tarsal segment with 5, 5, 5 hairs.

New species live in the desert zone, on the plants from Cynareae tribe of Asteraceae family (*Echinops*, *Cousinia*), not visited by the ants.

DIFFERENCIAL ANALYSIS. New genus relates to *Macrosiphoniella* Guerc. by the forms of siphunculi and cauda, square of reticulated zone on the siphunculi, absence of the ante- and postsiphuncular sclerites. However, it differs from this genus by the presence of 5 hairs on the first tarsal segments and large median frontal tubercle. *Turanoleucon* may be distinguished from *Paczoskia* Mordv. and *Uroleucon* Mordv., which have 5 hairs on the first tarsal segment too, by the forms of frontal groove and cauda, square of reticulated zone on siphunculi, absence of ante- and postsiphuncular sclerites. Presence of single process on the anal plate (on *Paczoskia*) and more than 6 hairs on the disc of genital plate draws new genus with *Metopeurum* Mordv., *Microsiphum* Chol., *Ramitrichopus* H. R. L. However, *Turanoleucon* differs from these taxa by the presence of 5 hairs on the first tarsal segments and different form of frontal groove.

ETYMOLOGY. The name of new genus is derived from combination of ancient name of desert zone in Central Asia with the name nearest of genus *Uroleucon*.

### *Turanoleucon mityaevi* Kadyrbekov, sp. n.

**Apterous viviparous female** (by 15 specimens). Body is egg-shaped, 2.21-3.24 (fig. 1a). Cuticle is thick, largely reticulated, cells edges are small-cogged. Frons is lowly grooved, with large, square median tubercle, which equal to the diverged antennal tubercles. Depth of frontal groove is 0.11-0.15 of the distance between apices of antennal tubercles. Frontal hairs (0.067-0.073) are thick, shovel-shaped, 1.5-1.7 of basal diameter of 3<sup>rd</sup> antennal segment. Antennae are six-segmented, 0.84-0.97 of body length. Third segment is (1.66) 1.70-1.98 of 4<sup>th</sup> one, 1.28-1.55 of the 6<sup>th</sup> segment. *Processus terminalis* is 3.3-4.3 of the base of 6<sup>th</sup>

segment, 0.51-0.62 of 3<sup>rd</sup> one. Secondary rhinaria in number 28-49 are developed on the 0.57-0.75 of the 3<sup>rd</sup> segment length (fig. 1b). Hairs on the 3<sup>rd</sup> segment (0.039-0.045) are shovel-shaped, 0.9-1.0 of its basal diameter. Very long rostrum reaches the 4<sup>th</sup> abdominal sternite. Its ultimate rostral segment (fig. 1c) is fine, elongated, 1.95-2.15 of the second segment of hind tarsus, 0.72-0.89 of cauda length, with 10 accessory hairs. There are 14-16 hairs on the penultimate segment. Cylindrical siphunculi are long, wide in the base, with distinct flanges, they are 0.29-0.36 of the body length, 1.9-2.4 of the cauda (fig. 1d). Reticulated zone is developed on the 0.35-0.43 of their length. Cauda is finger-shaped, elongated, with blunt apex and 14-20 hairs (fig. 1e). Dorsal hairs (0.056-0.062) are thick, shovel-shaped, 1.3-1.5 of the base of 3<sup>rd</sup> antennal segment. There are (4) 6-8 hairs on the 8<sup>th</sup> tergite. Marginal tubercles are absent. Genital plate is broad oval, with 6-10 hairs on disc and 13-16 ones along its posterior margin. Single gentle process is developed on the anal plate. Legs are relatively short. First tarsal segment with 5:5:5 hairs.

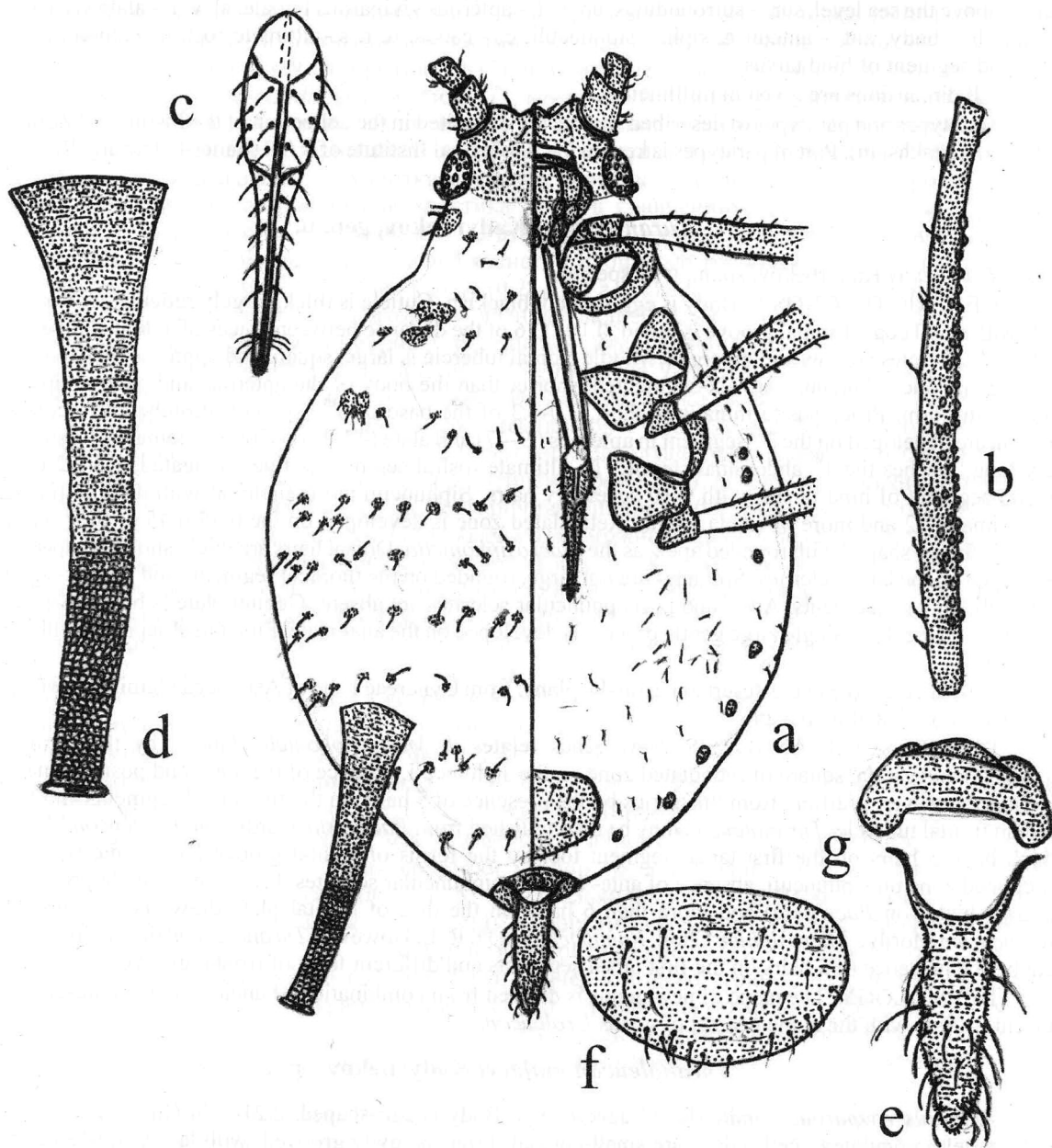


Fig. 1. Apterous viviparous female *Turanoleucon mitjaevi*, sp.n.: a - habitus, b - third antennal segment, c - penultimate and ultimate rostral segments, d - siphunculus, e - cauda, f - genital plate, g - process of anal plate.

Color on slide: head, clypeus, rostrum, antennae (except the base of 3<sup>rd</sup> segment), legs (except of the basal one third of femora and sometimes middle of tibiae), anal and genital plates, siphunculi, cauda, dorsal sclerites are blackish. Large marginal sclerites are developed on the thoracic segments. Small sclerites are developed in the base of majority of dorsal hairs on the thorax and tergites. Ante- and postsiphuncular sclerites in the base of the siphunculi are absent. Natural coloration: body is black, eyes are dark-reddish.

**Dimension of holotype.** B. 3.24; ant. 2.72-2.73; III 0.91-0.94, IV 0.48, V 0.36-0.40, VI 0.68 (0.13-0.14+0.54-0.55); siph. 0.95-0.96; c. 0.42; u. r. s. 0.33; 2 s. h. t. 0.16.

**Alate viviparous female** (by 6 specimens). Body is 2.68-3.46. Antennae are 0.85-0.96 of body length. Third antennal segment is 1.64-1.81 of 4<sup>th</sup>, 1.05-1.32 of 6<sup>th</sup> ones. Secondary rhinaria (57-77) are developed on the 90% of the 3<sup>rd</sup> antennal segment length, 0-4 secondary rhinaria are sometimes developed on the 4<sup>th</sup> one. Processus terminalis is 4.0-4.3 of the base of 6<sup>th</sup>, 0.61-0.77 of 3<sup>rd</sup> segments. Ultimate rostral segment is 0.82-0.97 of cauda length. Siphunculi are 0.27-0.32 of body length. Cauda has a constriction in the basal part, with 17-23 hairs. Other characters are as in the apterous female.

Color on slide: head, antennae, thorax, rostrum, clypeus, legs (except the basal one third of femora and sometimes the middle part of tibiae), dorsal sclerites, siphunculi, cauda, genital and anal plates are black. Large marginal sclerites are developed on the 1-4<sup>th</sup> and 6<sup>th</sup> tergites. There is a transversal stripe on the 8<sup>th</sup> one. Small dorsal sclerites are developed in the bases of some hairs.

**Dimension of allotype:** b. 2.70; ant. 2.55-2.58; III 0.78, IV 0.43-0.48, V 0.36-0.38, VI 0.74 (0.14+0.60); siph. 0.77-0.79; c. 0.36; u. r. s. 0.35; 2 s. h. t. 0.17.

**Host plant.** *Cousinia affinis* Schrenk, *C. alata* Schrenk, *C. platylepis* Schrenk. (Asteraceae).

**Bionomy.** Aphids suck on the stem, not visited by ants.

**Material examined.** Holotype: ap. v. f., slide N 1814a, S Kazakhstan, North coast of Aral Sea, 30 km E Kaukej, Juan-Kum sands, 24. 05. 1990, R. Kadyrbekov; paratypes: 5 ap. v. f. together with holotype; 5 ap. v. f., 2 al. v. f., slide N 891, SE Kazakhstan, Almaly sur., Luk-kum sands, 8. 06. 1986, R. Jashenko; 4 ap. v. f., 4 al. v. f., N2896-2897, E Kazakhstan, sur. Ajagus t., Ajagus riv., 24. 06. 1963, S. Arkhangelskaja.

**Distribution.** Clay and sandy deserts of the South and East Kazakhstan.

**Etymology.** New species was named in honor of my teacher – famous kazakhstanian entomologist.

### *Turanoleucon jashenkoi* Kadyrbekov, sp. n.

**Apterous viviparous female** (by 7 specimens). Body is egg-shaped, 2.34-2.55 (fig. 2a). Cuticle is thick, largely reticulated, cells edges are small-cogged. Frons is lowly grooved, with large, square median tubercle, which slightly lower then the diverged antennal tubercles. Depth of frontal groove is 0.10-0.16 of the distance between apices of antennal tubercles. Frontal hairs (0.062-0.078) are thick, shovel-formed, 1.6-1.8 of basal diameter of 3<sup>rd</sup> antennal segment. Antennae are six-segmented, 0.77-0.83 (1.04) of body length. Third segment is 1.65-1.85 of 4<sup>th</sup> one, 0.98-1.25 of the 6<sup>th</sup> segment. *Processus terminalis* is 3.0-3.7 of the base of 6<sup>th</sup> segment, 0.60-0.85 of 3<sup>rd</sup> one. Secondary rhinaria in number 9-28 are developed on the 0.35-0.60 of the 3<sup>rd</sup> segment length (fig. 2b). Hairs on the 3<sup>rd</sup> segment (0.034-0.045) are shovel-shaped, 0.9-1.1 of its basal diameter. Very long rostrum reaches the 4<sup>th</sup> abdominal sternite. Its ultimate rostral segment (fig. 2c) is fine, elongated, 1.93-2.10 (2.40) of the second segment of hind tarsus, 0.82-1.05 (1.13) of cauda length, with 9-10 accessory hairs. There are 14 hairs on the penultimate segment. Cylindrical siphunculi are long, wide in the base, with distinct flanges, they are 0.25-0.28 of the body length, 2.0-2.6 of the cauda (fig. 2d). Reticulated zone is developed on the 0.40-0.45 of their length. Cauda is finger-shaped, with rounded apex and 13-19 hairs (fig. 2e). Dorsal hairs (0.056-0.067) are thick, shovel-shaped, 1.3-1.7 of the base of 3<sup>rd</sup> antennal segment. There are 4 hairs on the 8<sup>th</sup> tergite. Marginal tubercles are absent. Genital plate is broad oval, with 6-9 hairs on disc and 10-18 ones along its posterior margin. Single large gentle process is developed on the anal plate. Legs are relatively short. First tarsal segment with 5:5:5 hairs.

Color on slide: head, clypeus, rostrum, antennae (except the base of 3<sup>rd</sup> segment), legs (except the basal one third of femora and middle of tibiae), anal and genital plates, siphunculi, cauda, dorsal sclerites are blackened. Large marginal sclerites are developed on the thoracic segments. Small sclerites are developed in the base of majority dorsal hairs on the thorax and tergites. Ante- and postsiphuncular sclerites in the base of the siphunculi are absent. There is transversal stripe on the 8<sup>th</sup> tergite. Natural coloration: body is black, eyes are dark-reddish.

**Dimension of holotype.** B. 2.54; ant. 1.97-2.03; III 0.56-0.57, IV 0.31-0.33, V 0.30-0.33, VI 0.57-0.61 (0.13+0.44-0.48); siph. 0.66-0.69; c. 0.33; u. r. s. 0.27; 2 s. h. t. 0.14.

**Alate viviparous female** (by 3 specimens). Body is 2.34-3.15. Antennae are 0.82-1.00 of body length.



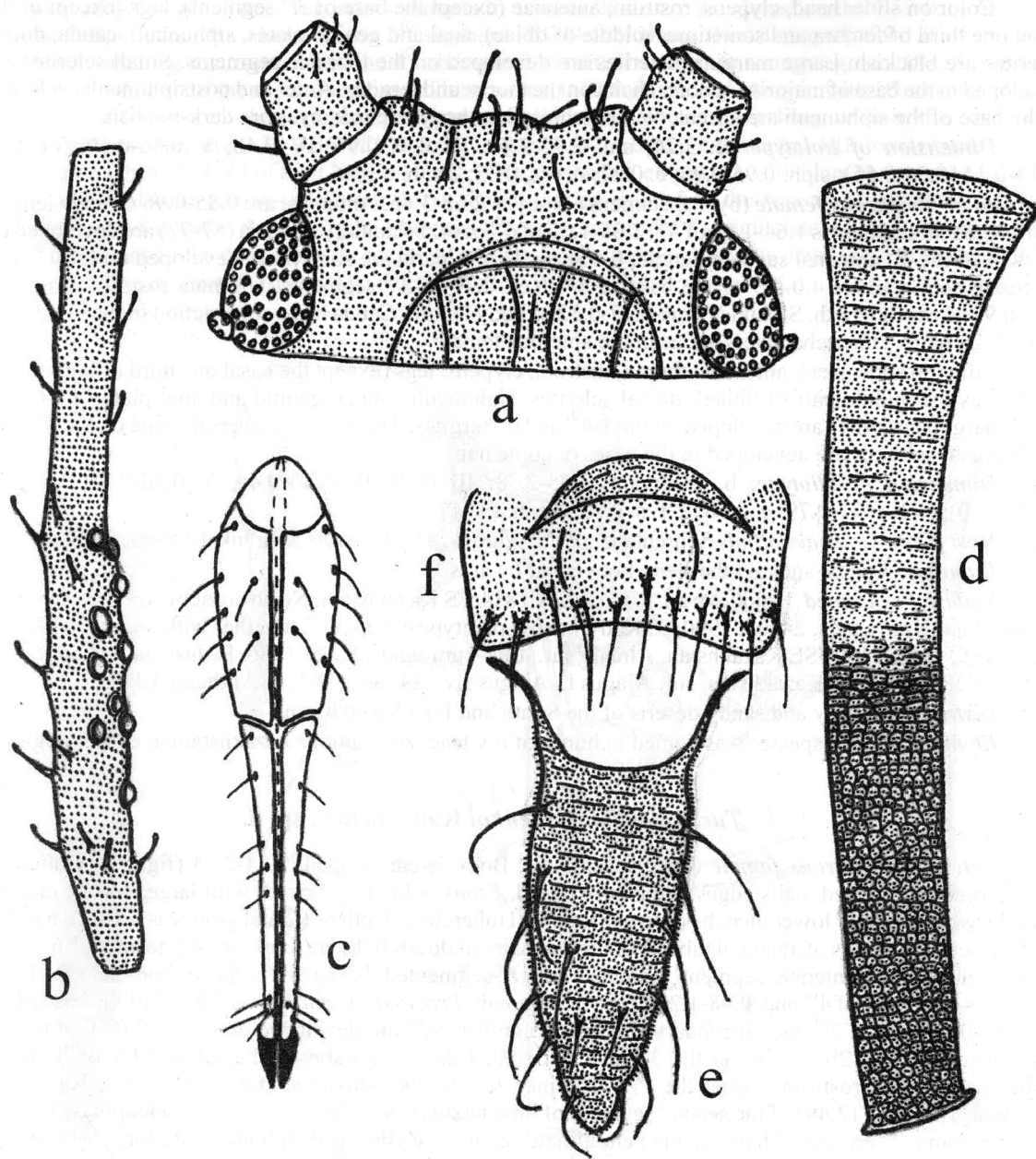


Fig. 2. Apterous viviparous female *Turanoleucon jashenkoi*, sp.n.: a - head, b - third antennal segment, c - penultimate and ultimate rostral segments, d - siphunculus, e - cauda, f - process of anal plate.

Third antennal segment 1.45-1.91 of 4<sup>th</sup>, 1.04-1.35 of 6<sup>th</sup> ones. Secondary rhinaria (44-66) are developed on the 90% of the 3<sup>rd</sup> antennal segment length. Processus terminalis is 3.6-3.9 of the base of 6<sup>th</sup>, 0.58-0.76 of 3<sup>rd</sup> segments. Ultimate rostral segment is 1.82-2.10 of the second segment of hind tarsus. Siphunculi are 0.27-0.31 of body length with reticulated zone on the 0.35-0.40 of their length. Other characters are as in the apterous female.

Color on slide: head, antennae, thorax, rostrum, clypeus, legs (except the basal one third of femora), dorsal sclerites, siphunculi, cauda, genital and anal plates are blackish. Large marginal sclerites are developed on the 1-4<sup>th</sup> and 6<sup>th</sup> tergites. There is transversal stripe on the 8<sup>th</sup> one. Small dorsal sclerites are developed in the bases of some hairs.

**Dimension of allotype:** b. 2.34; ant. 2.28-2.35: III 0.69-0.72, IV 0.39-0.42, V 0.33, VI 0.62-0.69 (0.13-0.14+0.49-0.55); siph. 0.72; c. 0.30; u. r. s. 0.31; 2 s. h. t. 0.14.

**Host plant.** *Ehinops albicaulis* Kar. et Kir., *E. ritro* L. (Asteraceae).

**Bionomy.** Aphids suck on the stem, not visited by ants.

**Material examined.** Holotype: ap. v. f., slide N 1901a, S Kazakhstan, North coast of Aral Sea, Altin-Chokusu, 13. 06. 1990, R. Kadyrbekov; paratypes: 4 ap. v. f., 1 al. v. f. together with holotype; 2 ap. v. f., 2 al. v. f., slide N 895, E Kazakhstan, 45 km W Ajagus t., Ajagus riv., 22. 06. 1986, R. Jashenko.

**Distribution.** Clay and sandy deserts of the South and East Kazakhstan.

**Taxonomical notes.** New species is related to *T. mitjaevi* sp. n.. It differs from last by the number of secondary rhinaria of apterous viviparous females (9-28 versus 28-49), differing indices of the 3<sup>rd</sup> antennal segment to 6<sup>th</sup> one (0.98-1.25 versus 1.28-1.55) and those of siphunculi to body (0.25-0.28 versus 0.29-0.36), number of hairs on the 8<sup>th</sup> tergite.

**Etymology.** New species was named in honor of my colleague entomologist Jashenko Roman, who for the first time collected this taxon.

## Резюме

**Кадырбеков Р. Х. Новый род и новые виды тлей подтрибы Macrosiphina (Homoptera, Aphidinae) из пустынной зоны Казахстана.**

При обработке материалов, собранных в предыдущие годы в пустынях Казахстана, обнаружены два новых вида тлей из подтрибы Macrosiphina, принадлежащие к новому роду *Turanoleucon* gen. n.

Голотипы и паратипы описанных видов хранятся в коллекции Института зоологии МОН РК (Алматы, Казахстан), часть паратипов переданы на хранение в коллекцию Зоологического Института РАН (Санкт-Петербург, Россия).

### *Turanoleucon* Kadyrbekov, gen. n.

*T. mitjaevi* sp. n. – типовой вид.

**Диагноз рода.** Тело яйцевидное, черно-бурое при жизни. Кутикула утолщенная, крупноячеистая, края ячеек с мелкими зубчиками. Лобный желобок широкий, неглубокий, 0.10-0.16 расстояния между вершинами усиковых бугров. Усиковые бугры низкие расходящиеся. Срединный лобный бугор массивный, почти квадратный, примерно равен по высоте усиковым буграм. Усики шестичлениковые, у живородящих самок, в норме, короче тела. Шпиц короткий, в 3.0-4.3 раза превосходит основание 6-го членика. Выпуклые вторичные ринарии всегда есть на 3-м членике усиков у бескрылых (9-49) и крылатых (47-77) самок. Хоботок очень длинный, доходит до 4-го стернита брюшка, его последний членик тонкий, длинный, в 1.8-2.2 раза длиннее 2-го членика задней лапки, с 9-10 аксессуарными волосками. Трубочки цилиндрические с ясными ободками, примерно в 2 и более раза превосходят хвостик. Ячеистая зона занимает 0.35-0.45 их длины. Хвостик пальцевидный с закругленной вершиной, напоминает хвостики представителей рода *Macrosiphoniella*. Дорсальные волоски утолщенные лопаточковидные расположены на довольно крупных склеритах. Дыхальца не крупные, круглые на грудных, и фасолевидные на брюшных сегментах. Предтрубочные и затрубочные полулунные склериты отсутствуют. Генитальная пластинка широкоовальная, с 6-10 волосками на диске. На анальной пластинке имеется одиночный, крупный и пологий вырост. На первом членике всех лапок по 5 волосков.

**Дифференциальный анализ.** Новый род по форме трубочек, размеру ячеистой площади на них, форме хвостика, отсутствию пред- и затрубочных полулунных склеритов близок к *Macrosiphoniella* Guerc. Однако, *Turanoleucon* легко отличается от последнего наличием 5 волосков на первом членике всех лапок и наличием крупного срединного лобного бугра. От *Uroleucon* Mordv., *Paczoskia* Mordv., также имеющих по 5 волосков на первом членике лапок, новый род легко отличается по форме лобного желобка и хвостика, ячеистой площади трубочек, отсутствию пред- и затрубочных склеритов. Наличие одиночного выроста на анальной пластинке (есть и у *Paczoskia*) и большое число волосков на диске генитальной пластинки (6-10) сближает *Turanoleucon* с *Metopeurum* Mordv., *Microsiphum* Chol., *Ramitrichopus* H. R. L., однако, 5 волосков на первом членике лапок и иная форма лба позволяют легко отличить его от перечисленных выше таксонов.

*T. mitjaevi* sp. n. с *Cousinia* spp. и *T. jashenkoi* sp. n. с *Echinops* spp. отличаются друг от друга по числу вторичных ринарий у бескрылых живородящих самок (28-49 против 9-28), пропорциям 3-го членика усиков к 6-му (1.28-1.55 в сравнении с 0.98-1.25), трубочек к телу (0.29-0.36 против 0.25-0.28) и по числу волосков на 8-м тергите (6-8 в сравнении с 4).