New taxa of gall midges from the Russian Far East (Diptera: Cecidomyiidae)

Z.A. Fedotova & V.S. Sidorenko

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Twelve new species and seven new genera of gall midges from Primorsk Territory are described: *Dentifibula hastata* sp. n., *Aculeatodiplosis fasciata* gen. et sp. n., *Tuguridiplosis phaseoliformis* gen. et sp. n., *T. abdita* sp. n., *T. cordata* sp. n., *Stenohypodiplosis sejuncta* gen. et sp. n., *Samaradiplosis devexa* gen. et sp. n., *Montosidiplosis crenata* gen. et sp. n., *Dissimilidiplosis strumosa* gen. et sp. n., *Tonsidiplosis incurva* gen. et sp. n., *T. rostriformis* sp. n., and *T. tuberculata* sp. n. *Trisopsis tjanshanica* (Marikovskij, 1960) is transferred to the genus *Tonsidiplosis*, comb. n.

Z.A. Fedotova, Samara Academy of Agriculture, Ust-Kinelskiy 446442, Samara Prov., Russia. E-mail: zoya-fedotova@yandex.ru

V.S. Sidorenko, Institute of Biology and Soil Science, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok 690022, Russia. E-mail: entomol@ibss.dvo.ru

Introduction

The International Network DIVERSITAS in the Western Pacific and Asia (DIWPA) was established in 1993 with a series of biodiversity focused goals including the inventoring and monitoring of biodiversity and its ecosystem function. DIWPA has led to an improved collaboration between biodiversity researchers and has organized in 2001 the "International Biodiversity Observation Year" (IBOY). According to recommendations of DIWPA-IBOY, an one-hectare plot has been selected in the vicinity of village Kamenushka (Primorsk Territory, Ussuriisk District), in a mixed coniferous-broad-leaved forest on the top of a hill (200 m above sea level) on the left side of the Volkha River (43º36.63´N 132º 14.18´E). A total of 33619 specimens of arthropods from 118 samples have been collected on plot by different methods, 3590 of them belonging to Cecidomyiidae.

This paper is devoted to descriptions of several new taxa of gall midges collected on the experimental plot. The holotypes and paratypes of new species are deposited in the Zoological Institute, St.Petersburg (ZIAS). The abbreviations used in the paper are as follows: F1, F2, ... F15 – length of flagellomeres 1, 2, ... 15; LT – light trap; MT – Malaise trap; WT – window trap.

It should be mentioned that the diagnoses of the new genera are based on characters of males, and tribal positions of the new genera are tentative, since they are described from male specimens only.

TAXONOMIC ACCOUNT

Tribe **CONTARINIINI** Rübsaamen & Hedicke, 1926

Genus **Dentifibula** Felt, 1908

Diagnosis (based on Harris, 1968, emended). Body small; female wing length about 1.0 mm. Palpi 3-4-segmented. Antennae with 2+12 segments. In male, flagellar antennal segments with two nodes; proximal and distal necks long; each node with a single set of circumfilar loops. In female, antennal segments with long cylindrical nodes and relatively long necks, circumfila simple. Wing with R_5 joining costa slightly before apex. Tarsal claws simple on all legs. Gonocoxites with a distal triangular elongation and subapical insertion. Gonostyli short, inserted subapically. Aedeagus long. Hypoproct simple, entire. Cerci short, divided, sometimes reduced.

Composition. The genus includes five Palaearctic species: *D. viburni* (Felt, 1907) (Italy and

also the Nearctic), *D. turkmenorum* Mamaev, 1986 (Turkmenistan), *D. nigritarsis* Mo, 1992 (China), *D. magna* Mo & Liu, 2003 (China), and *D. marikovskajae* Fedotova & Sidorenko, 2004 (Russian Far East). Other species are known from India, Ceylon and North America (Grover, 1965; Harris, 1968; Gagnй, 1973, 2004).

Bionomics. The larvae of two species are known as predators of Diaspididae (Coccinea). Biology of other species is unknown.

Dentifibula hastata Fedotova & Sidorenko, sp. n. (Figs 1-8)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 18.VII.2001, slide no. 170 MT 12/1 (leg. V. Sidorenko) (ZIAS).

Description. *Male*. Body length 0.73 mm; wing length 1.1 mm, wing width 0.58 mm. Body pale yellow. Eyes occupying nearly entire surface of head. Antennae with 2+12 segments; scape not visible; pedicel transverse, rounded, 1.3 times as long as wide. F1 5.2 times as long as wide; basal node of F1 much longer than basal nodes of other flagellomeres. F1 slightly darker than other flagellomeres. Distal node of F1 about 0.8 times as long as proximal neck and 1.1 times as long as proximal node. F5 1.7 times as long as wide; proximal neck, distal and proximal nodes almost equal in length; distal neck 1.5 times as long as distal node; circumfilar loops not reaching next node. F12 2.7 times as long as wide, with rounded apex. Palpi 4-segmented, ratios of segments 1:0.9:0.8:0.8; 4rd segment strongly swollen and rounded apically. Wings without dark spots along veins, 2.5 times as long as wide. Vein R_5 almost straight, joining *C* before wing apex. Tarsomeres 4 and 5 covered with dark scales. Tarsal claw simple, hook-shaped; empodium longer than claw.

Gonocoxite strongly enlarged medially, with long tapered lobe apically, 3.0 times as long as wide, 1.6 times as long as gonostylus, with a small protrusion at apex, densely covered by short setae. Gonostylus slightly concave medially, 3.9 times as long as wide, with proximal and distal halves strongly enlarged, strongly sclerotized distally. Cerci reduced, unsclerotized. Hypoproct not visible, probably reduced. Aedeagus unsclerotized, almost parallel-sided in middle part and pointed apically, but strongly curved, much longer than gonocoxite. Genital base undeveloped.

Female, larva and biology unknown.

Comparison. The new species differs from all known species of *Dentifibula* in the very long curved aedeagus and very long gonostyli attached to distinctive protrusions of gonocoxites. It is closely related to *D. nigritarsis* Mo but differs in the very long and curved aedeagus, lateral side of gonocoxite less rounded in proximal half, reduced cerci and hypoproct, gonostylus more swollen apically and basally, more elongate wing (2.5 times as long as wide in *D. hastata*, 2.2 times, in *D. nigritarsis*) and longer necks of mid flagellomeres. The new species is similar to *D. turkmenorum* Mamaev in having 4-segmented palpi, reduced cerci and hypoproct, and very long aedeagus, which is longer than the gonocoxite and gonostylus. *D. hastata* differs from *D. turkmenorum* in the gonostylus longer than the basal part of gonocoxite (from the base to insertion site of the gonostylus). Contrastingly, in *D. turkmenorum* the aedeagus and gonostylus are shorter than the gonocoxite and its basal part, respectively. Another species from the Russian Far East, *D. marikovskajae* Fedotova & Sidorenko, differs from the new species in the 3-segmented palpi, aedeagus shorter than gonocoxites, well-developed cerci and hypoproct.

Tribe **CECIDOMYIINI** Rübsaamen & Hedicke, 1926

Genus **Aculeatodiplosis** Fedotova & Sidorenko, gen. n.

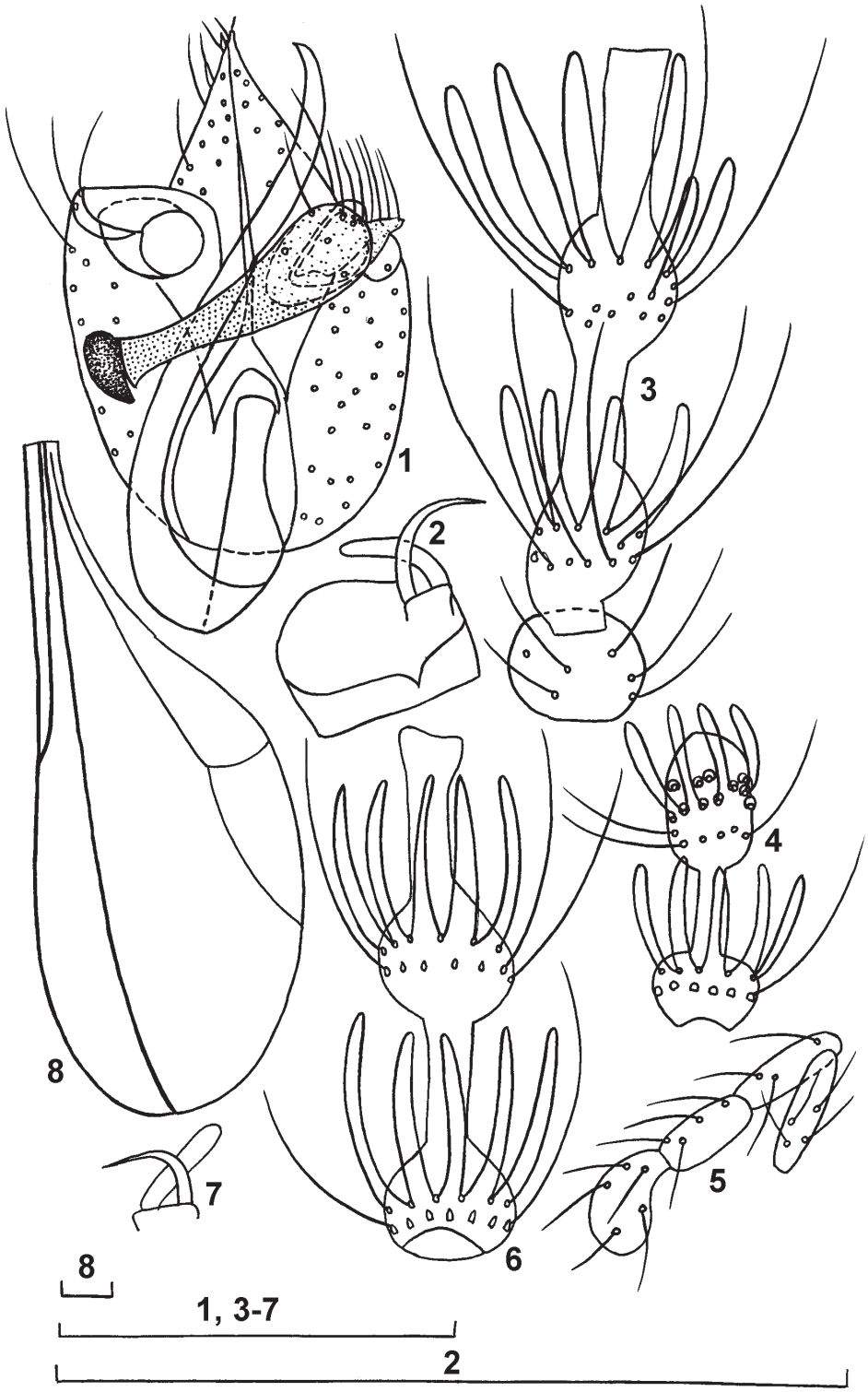
Type species: *Aculeatodiplosis fasciata* Fedotova & Sidorenko, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head. Head without postvertical peak. Antennae with 2+12 segments. Male flagellomeres with two nodes; distal nodes slightly wider than proximal ones, without narrowing in mid segments and with two whorls of circumfilar loops; proximal nodes with one whorl of loops; each node with one whorl of setae. Mouthparts with long clypeus. Palpi 3-segmented. Wing strongly widened proximally. Vein R_5 slightly curved and joining *C* distinctly behind wing apex. *Cu* forked; M_{3+4} and *pCu* present. Tarsal claw simple.

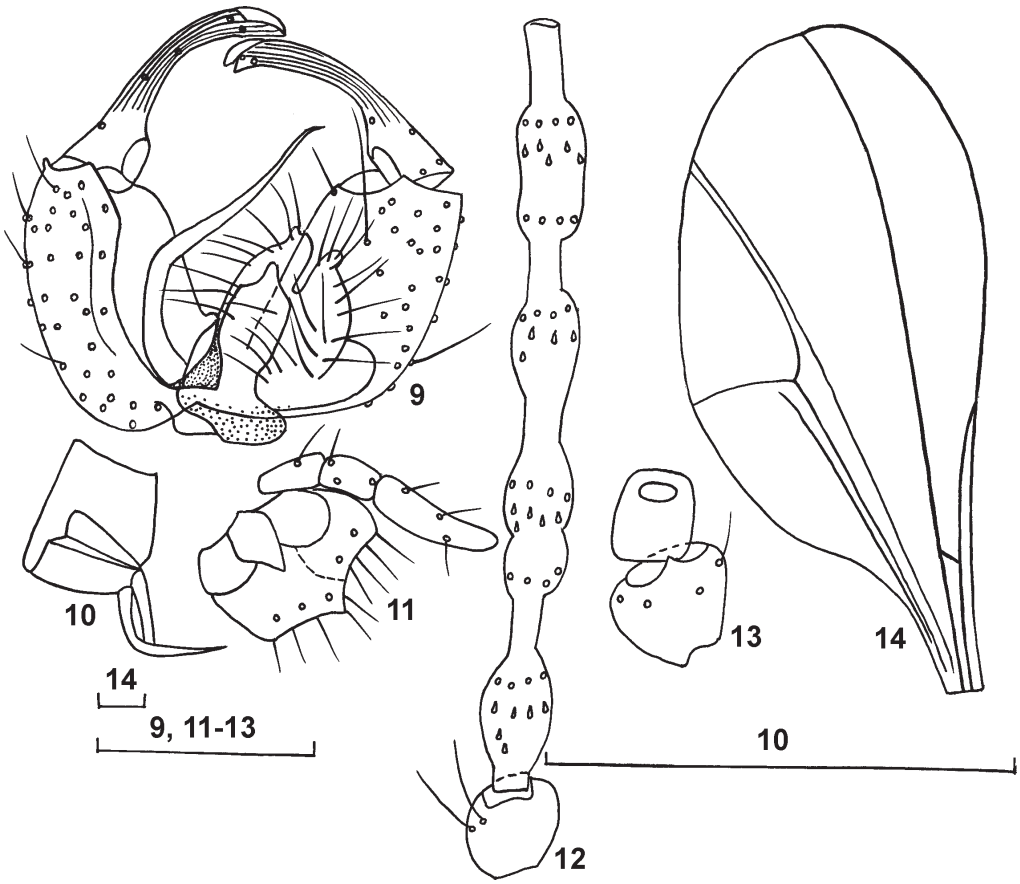
Male genitalia with short gonocoxites and short curved gonostyli. Gonostylus densely covered with almost straight strips, strongly sclerotized distally. Cerci with incision and rounded lobes. Hypoproct shorter than cerci, without incision. Aedeagus very thin, curved basally and pointed apically, longer than gonocoxite.

Comparison. The new genus is similar to the European genus *Camptodiplosis* Kieffer, 1912 including two species (Skuhravá, 1997), chiefly in the entire hypoproct and thin gonostyli, but differs from it in the thinner pointed aedeagus, apical protrusion on the hypoproct and cerci, deep narrow (not triangular) incision on cerci, 3-segmented (not 4-segmented) palpus and the absence of processes at the base of gonocoxite.

Included species. Type species only.



Figs 1-8. *Dentifibula hastata* sp. n., male. **1**, genitalia; **2**, **7**, tarsal claw (variation of shape); **3**, pedicel and F1; **4**, F12; **5**, palpus; **6**, F5; **8**, wing. Scales: 0.1 mm.



Figs 9-14. *Aculeatodiplosis fasciata* sp. n., male. **9**, genitalia; **10**, tarsal claw; **11**, mouthparts; **12**, pedicel, F1 and F2; **13**, scape and pedicel; **14**, wing. Scales: 0.1 mm.

Aculeatodiplosis fasciata Fedotova & Sidorenko, sp. n.
(Figs 9-14)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 30.VI.2001, slide no. 163 LT/5B (leg. V. Sidorenko) (ZIAS).

Description. *Male*. Body length 2.0 mm; wing length 2.75 mm, wing width 1.23 mm. Antennae with pedicel almost rounded; scape 1.2 times as long as pedicel. Basal node of F1 as long as other ones; distal node of flagellum slightly larger. F1 5.8 times as long as wide. Distal node 1.1 times as long as proximal one, 2.6 times as long as proximal neck and 3.2 times as long as distal neck. Distal neck 1.2 times as long as proximal one. F2 without narrowing, 0.9 times as long as F1. Palpi 3-segmented, ratios of segments 1:0.8:1.9; 3rd segment slightly enlarged proximally. Wing 2.2 times as long as wide. Vein R_5 forming large apical cell. Empodium and claw equal in length.

Gonocoxites strongly curved, enlarged basally, 3.5 times as long as wide. Gonostylus almost equal to gonocoxite in length, slightly sclerotized proximally and covered by strips, 3.5 times as long as wide, enlarged basally. Cerci with protrusions at apices of lobes and with a narrow median incision. Hypoproct wide, with apical protrusion, slightly enlarged medially, narrowed basally; cerci 2.2 times as wide as hypoproct. Aedeagus strongly pointed, curved, with hook at apex.

Female, larva and biology unknown.

Genus **Tuguridiplosis** Fedotova, gen. n.

Type species: *Tuguridiplosis phaseoliformis* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head. Head without postvertical peak. Antennae with 2+12 segments. Male flagellomeres with two nodes: elongate distal one with narrowing in all segments and rounded or semicircular proximal one. In some segments, distal node without visible constriction. Male flagellomeres with three whorls of circumfilar loops and two whorls of setae. Circumfilar loops short, not reaching next node. Terminal antennal segment with long oval protrusion, narrowed at base. Necks of apical flagellomeres longer than necks of proximal ones. Palpi 3-4-segmented. Wing elongate, maximally widened distally. Vein R_{1+2} joining *C* far before wing middle; R_5 slightly curved and joining *C* distinctly beyond wing apex. Vein *pCu* not visible; *Cu* present, forked. Fork of *Cu* situated farther from wing base than junction of R_{1+2} to *C*. Tarsal claw simple.

Gonocoxite broad, strongly rounded basally, with rounded preapical lobes on inner side. Gonostylus deeply arcuate or angularly bent near base or before apex. Cerci with one or three apical incisions and two or four apices, respectively. Hypoproct concave apically, with two apices. Aedeagus thin apically and strongly widened basally, much longer than gonocoxites, with cylindrical, conical or swollen apex.

Comparison. The new genus is similar to the monotypical genus *Buhromyiella* Holz, 1970, known from Germany (Skuhravá, 1997), but differs from it in the wide cerci, enlarged gonocoxite, the gonostylus widened at base or in apical part and more or less distinctly curved (in *Buhromyiella*, it is smoothly arcuate and without abrupt widening), and simple claws of all tarsi.

Included species. *Tuguridiplosis phaseoliformis* sp. n., *T. abdita* sp. n. and *T. cordata* sp. n.

Tuguridiplosis phaseoliformis Fedotova, sp. n.
(Figs 15-22)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 13.VII.2001, slide no. WT 123/7010/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.3 mm; wing length 1.33, wing width 0.53 mm. Pedicel transverse; scape 1.2 times as long as pedicel. Distal nodes of flagellomeres elongate, with slight narrowing; proximal nodes almost rounded. Circumfilar loops of flagellomeres short, not reaching apices of respective proximal and distal necks. F1 5.2 times as long as wide; distal node 1.4 times as long as distal neck, twice as long as proximal neck and 1.5 times as long as proximal node. F1 1.2 times as long as F2. F5 4.6 times as long as wide, distal neck equal to distal node in length. Distal node of F5 1.5 times as long as proximal one and 1.2 times as long as proximal neck. F12 4.6 times as long as wide, with large elongate distal protrusion. Palpi 4-segmented, ratios of segments 1:2.1:1.8:0.7 and 1:1.9:1.9:1.2; 4th segment slightly enlarged and rounded apically. Wing 2.4 times as long as wide, maximally widened distally, with very large cell formed by veins *C* and R_5. Tarsal claw simple, bent in apical half almost at right angle; empodium equal to claw in length.

Apical part of gonocoxite with wide subapical incision and rounded subapical lobe on inner side. Gonocoxite 1.5 times as long as wide, 1.3 times as long as gonostylus. Gonostylus slightly curved distally, about 5 times as long as wide. Cerci with very wide and low incision between very short pointed lobes, 2.4 times as wide as hypoproct. Hypoproct Y-shaped, moderately sclerotized, enlarged distally, with oval apical incision. Aedeagus with thin cylindrical apical protrusion and very wide parallel-sided basal part.

Female, larva and biology unknown.

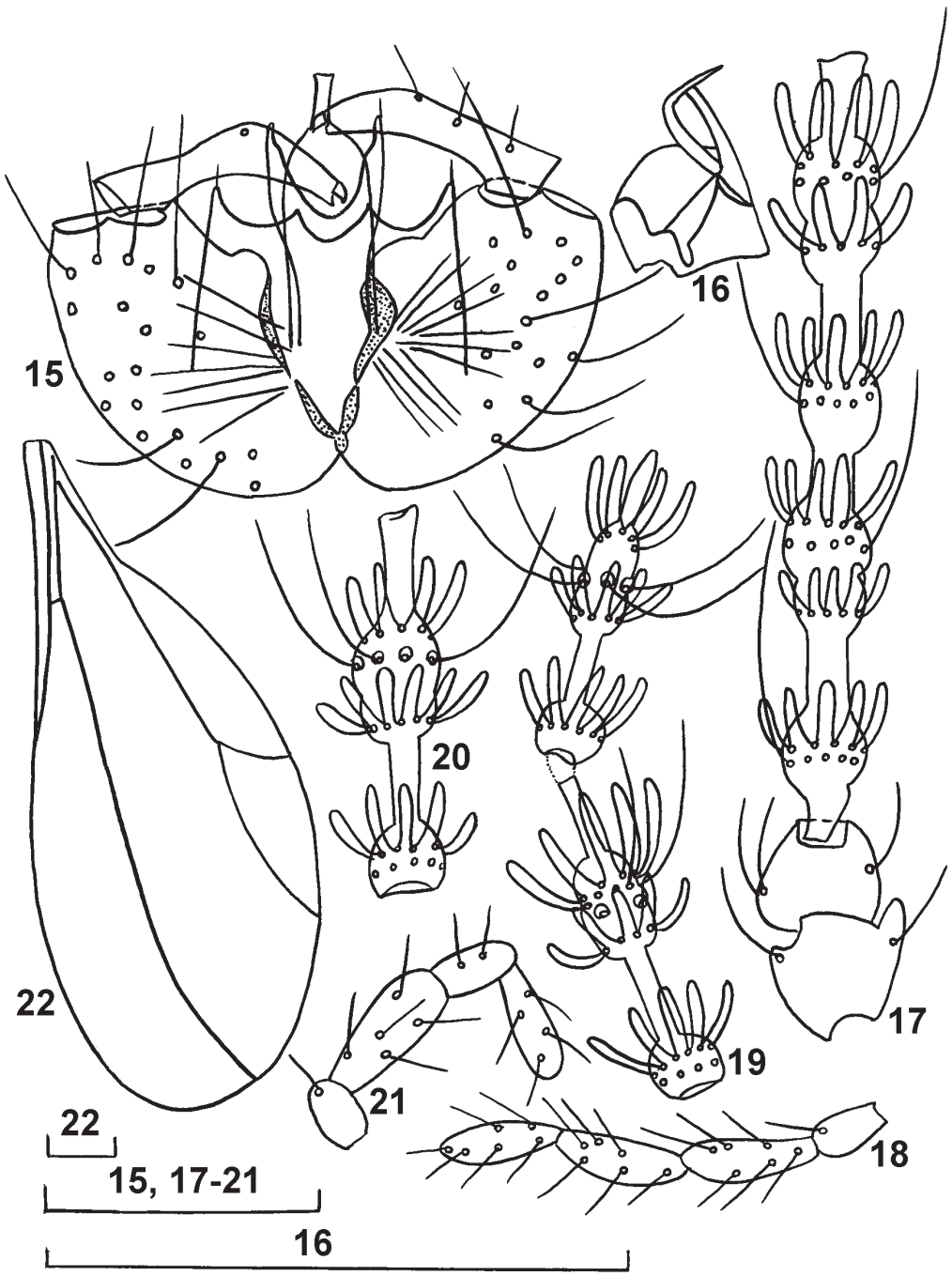
Comparison. See the key to species of *Tuguridiplosis* below.

Tuguridiplosis abdita Fedotova, sp. n.
(Figs 23-29)

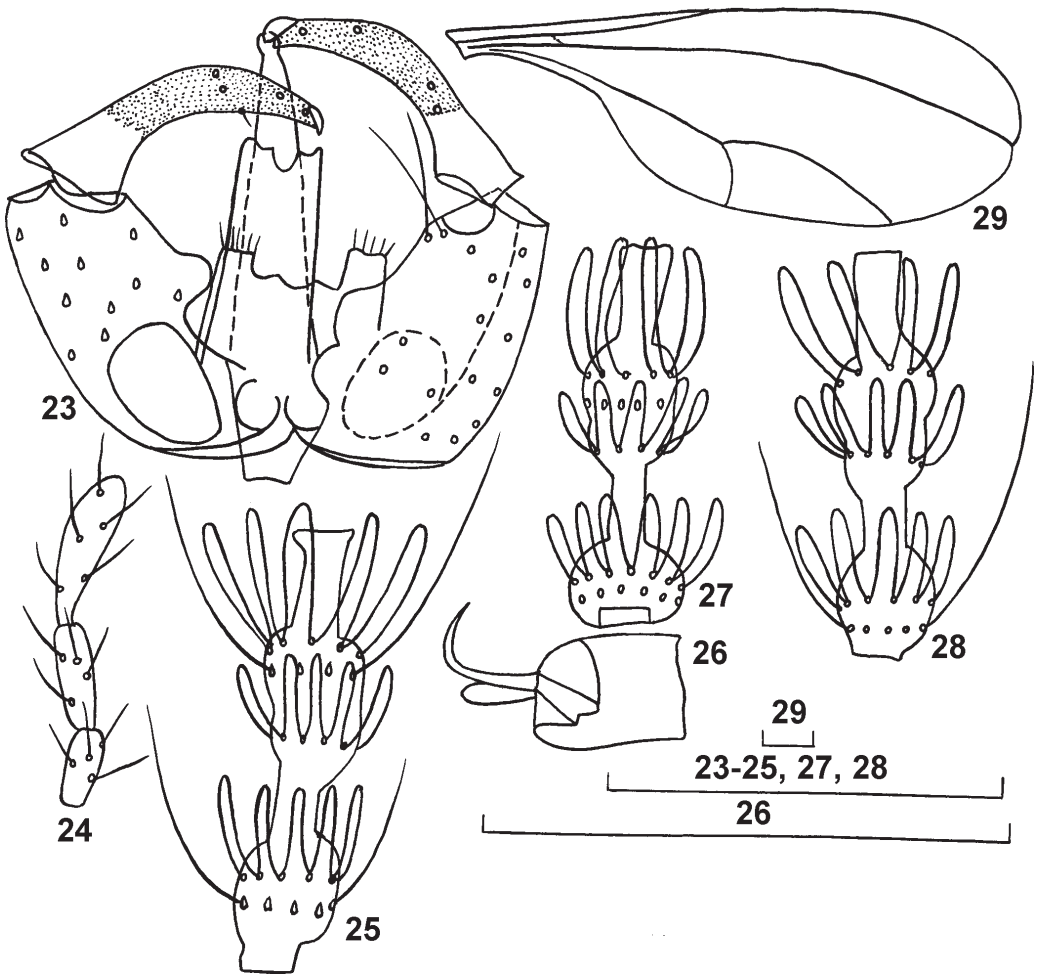
Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 26.VIII.2001, slide no. LT 152/7010/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 0.75 mm; wing length 1.15 mm. Pedicel and scape not visible. Distal nodes of flagellomeres elongate, with slight narrowing, proximal nodes of F1 and F2 almost rounded, that of F5 transverse. Circumfilar loops of flagellomeres long, reaching or almost reaching bases of respective proximal and distal nodes. F1 4.2 times as long as wide, distal node 1.5 times as long as distal neck, 3.4 times as long as proximal neck and 1.1 times as long as proximal node. F1 1.1 times as long as F2. F5 3.3 times as long as wide, distal node 1.5 times as long as distal neck. Distal node of F5 1.6 times as long as proximal one and 2.2 times as long as proximal neck. Palpi 3-segmented, ratios of segments 1:1.3:2; 3rd segment slightly enlarged and rounded apically. Wing 2.7 times as long as wide, maximally widened distally, with very large cell, formed by veins *C* and R_5. Tarsal claw simple, hook-shaped; empodium not visible.

Gonocoxite with wide subapical incision and rounded subapical lobe on inner side. Gonocoxite 1.7 times as long as wide. Gonostylus about 2.9 times as long as wide, almost equal to gonocoxite in length, moderately sclerotized distally, slightly curved medially, enlarged basally, with a small swelling on dorsal side. Cerci very wide, with a slight incision between very narrow short lobes, 2.4 times as wide as hypoproct. Hypoproct



Figs 15-22. *Tuguridiplosis phaseoliformis* sp. n., male. **15**, genitalia; **16**, tarsal claw; **17**, scape, pedicel, F1 and F2; **18**, **21**, palpus (variation of shape); **19**, F11 and F12; **20**, F5; **22**, wing**.** Scales: 0.1 mm.



Figs 23-29. *Tuguridiplosis abdita* sp. n., male. **23**, genitalia; **24**, palpus; **25**, F1; **26**, tarsal claw; **27**, F5; **28**, F2; **29**, wing. Scales: 0.1 mm.

almost parallel-sided, slightly enlarged distally, with triangular incision. Aedeagus conical, with rounded apical swelling.

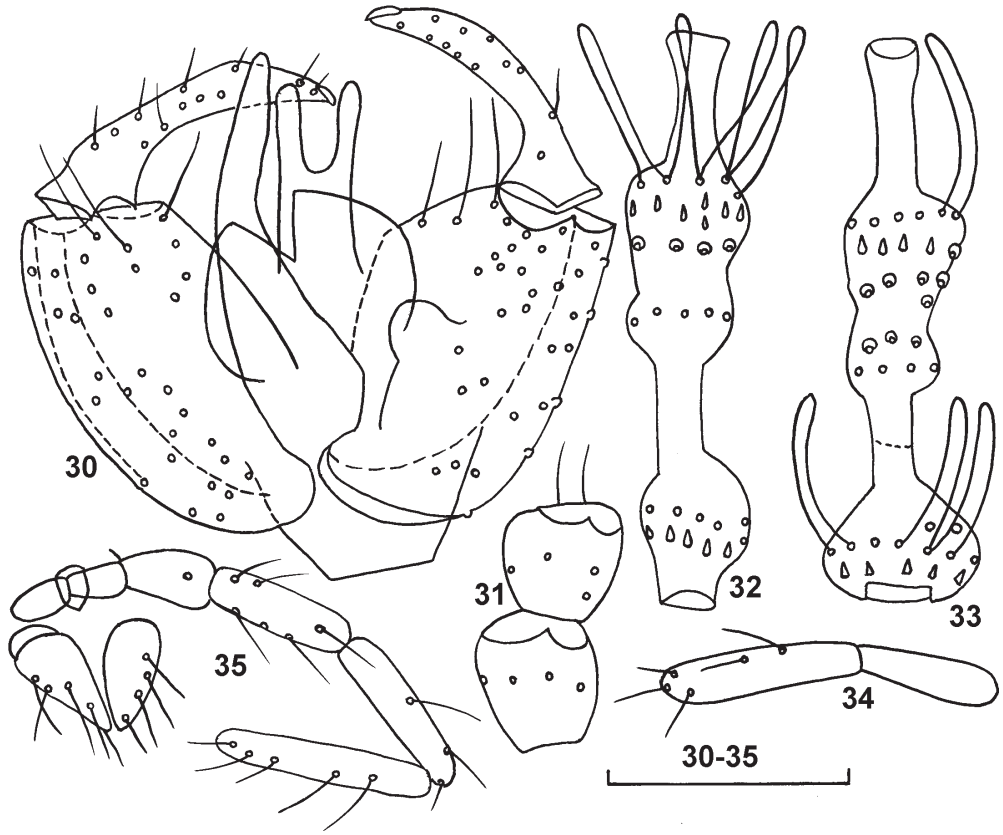
Female, larva and biology unknown.

Comparison. See the key to species of *Tuguridiplosis* below.

Tuguridiplosis cordata Fedotova, sp. n.
(Figs 30-35)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 23.VIII.2001, slide no. LT 161/6 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.5 mm; wing length 2.21, wing width 1.29 mm. Pedicel trapezoidal; scape 1.2 times as long as pedicel. Distal nodes of flagellomeres elongate, with slight incision; proximal nodes of F1 rounded, those of mid flagellomeres almost conical. Circumfilar loops of flagellomeres long, reaching apices of respective proximal and distal necks. F1 4.5 times as long as wide, distal node 1.6 times as long as distal neck, 2.1 times as long as proximal neck and 1.3 times as long as proximal node. F2 almost equal to F1 in length. F3 3.5 times as long as wide; distal node of F3 1.4 times as long as distal neck, 1.9 times as long as proximal one and 2.3 times as long as proximal neck. Palpi 4-segmented, ratios of segments 1:1.6:1.9:2.3 and 1:1.9:1.9:1.2; 4th segment slightly enlarged and rounded apically. Tarsi broken.



Figs 30-35. *Tuguridiplosis cordata* sp. n., male. **30**, genitalia; **31**, scape and pedicel; **32**, F1; **33**, F3; **34**, 3rd and 4th segments of palpus; **35**, mouthparts. Scales: 0.1 mm.

Gonocoxite without subapical incision. Inner side of gonocoxite with rounded processus in the middle. Gonocoxite 1.6 times as long as wide, 1.2 times as long as gonostylus. Gonostylus slightly curved proximally, about 1.2 times as long as wide, with large swelling on dorsal side. Cerci cordate, with triangular incision between pointed short lobes, 2.6 times as wide as hypoproct. Hypoproct moderately sclerotized, almost parallel-sided, with oval apical incision. Aedeagus moderately sclerotized, strongly swollen basally, curved medially, almost cylindrical and slightly narrowed distally, rounded apically.

Female, larva and biology unknown.

Comparison. See the key to species of *Tuguridiplosis* below.

Key to species of *Tuguridiplosis* (males)

1. Cerci heart-shaped (Fig. 30). Aedeagus slightly curved medially, gradually tapering from base to apex. Circumfilar loops reaching next nodes (Figs 32, 33). Palpi 4-segmented (Fig. 35). – Body length 1.5 mm . . . . . **T. cordata** sp. n.
– Each lobe of cerci with an additional incision (Figs 15, 23). Aedeagus not curved medially 2
2. Hypoproct with pointed apices, without additional apical incisions on lobes. Aedeagus strongly swollen, with parallel-sided basal half and thin obtuse apex (Fig. 15). Circumfilar loops not reaching next nodes (Figs 17, 19, 20). Palpi 4-segmented (Figs 18, 21). – Body length 1.3 mm . . . . . **T. phaseoliformis** sp. n.
– Hypoproct without pointed apices, with additional apical incisions on lobes. Aedeagus conical, gradually tapering from base to apex, with rounded apex (Fig. 23). Circumfilar loops almost reaching next nodes (Figs 25, 27, 28). Palpi 3-segmented (Fig. 24). – Body length 0.75 mm . . . . . **T. abdita** sp. n.

Genus **Stenohypodiplosis** Fedotova, gen. n.

Type species: *Stenohypodiplosis sejuncta* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head capsule. Head with postvertical peak. Antennae with 2+12 segments. Male flagellomeres with two nodes: long distal one with narrowing on all segments and rounded proximal one. In some segments, distal node al-

most without narrowing. Male flagellomeres with three whorls of circumfilar loops and two whorls of setae. Circumfilar loops short, not reaching next node. Terminal antennal segment with narrowing after distal node and cone-shaped apical part. Palpi 4-segmented. Wing elongate, maximally widened medially. Vein R_{1+2} joining *C* far before wing middle; R_5 strongly curved and joining *C* distinctly behind wing apex. M_{3+4} and forked *Cu* present. Fork of *Cu* situated farther from wing base than junction of R_{1+2} to *C*. Tarsal claw simple, bent at right angle; empodium much longer than claw.

Male genitalia with long gonocoxites and slender gonostyli. Cerci with acute-angled lobes. Hypoproct very narrow, much shorter and narrower than aedeagus, equal to cerci in length. Aedeagus equal to gonocoxite in length. Base of genitalia with triangular sclerotized plate.

Comparison. The new genus very similar to the monotypical genus *Dichodiplosis* Rübsaamen, 1910 from Europe (characters according to Skuhravá, 1997) in the shape of male genitalia, but differs from it in the conical (not cylindrical) aedeagus and hypoproct, much wider aedeagus (unequal to aedeagus and hypoproct in width), very wide and long cerci with oval (not triangular) incision, the presence of triangular (not rounded) process at the base of gonocoxite, not setose hypoproct almost equal to cerci in length (in *D. langeni* Rübsaamen, 1910, the hypoproct is much longer than cerci), short circumfilar loops of male flagellomeres nowhere near reaching the respective nodes, and the equal length of circumfilar loops of all whorls (in *D. langeni*, loops of the middle whorl are shorter than those of proximal and distal whorls).

Included species. Type species only.

Stenohypodiplosis sejuncta Fedotova, sp. n. (Figs 36-45)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 14.VIII.2001, slide no. 124 7010 WT/31 (leg. Z. Fedotova) (ZIAS).

Paratype. ♂, same locality, 14.VIII.2001, slide no. 129 7010 WT/51 (leg. Z. Fedotova).

Description. Male. Body length 1.4-1.6 mm; wing length 1.9-2.0 mm, wing width 0.53-0.73 mm. Antennae with 2+12 segments. Scape 1.2-1.3 times as long as pedicel; basal node of F1 longer and not wider than others; distal nodes of most flagellomeres with distinct constriction. F1 1.1 times as long as F2, 5.5 times as long as wide. Distal node of F1 1.4 times as long as distal neck, 1.9 times as long as proximal one and 1.6 times as long as proximal neck. Distal neck of F1 1.2 times as long as proximal one. F5 3.7-3.8 times as long as wide. Distal node of F5 0.9 times as long as or equal to distal neck, 1.2-1.7 times as long as proximal one and 1.2-1.5 times as long as proximal neck. F12 4.3 times as long as wide. Palpi 4-segmented, ratios of segments 1:1.7:2.5:1.6 and 1:1.4:2.0:2.2 (in holotype and paratype, respectively); 4th segment of palpus almost parallel-sided, rounded or slightly pointed apically. Wings 2.4-2.9 times as long as wide. Vein R_5 strongly curved apically, forming large apical cell. Tarsal claw curved near the middle.

Gonocoxite strongly enlarged basally, 2.1 times as long as wide, 1.2-1.3 times as long as gonostylus. Gonostylus enlarged, slightly bent distally and slightly swollen basally, 5.6-5.8 times as long as wide. Cerci slightly widened basally or almost parallel-sided, with long triangular apical lobes and large triangular emargination, unsclerotized, 3.3-4.4 times as wide as hypoproct. Hypoproct narrow, finger-like, moderately sclerotized in apical part, enlarged basally, rounded apically. Aedeagus pointed apically, with subapical constriction, 1.7 times as wide as hypoproct.

Female, larva and biology unknown.

Genus **Samaradiplosis** Fedotova, gen. n.

Type species: *Samaradiplosis devexa* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head capsule. Head with postvertical peak. Antennae with 2+12 segments. Male flagellomeres with two nodes: long distal one with constriction on middle segments and rounded or transverse proximal one. In some segments, especially in apical ones, distal node almost without narrowing. Male flagellomeres with three whorls of circumfilar loops and two whorls of setae. Circumfilar loops of proximal nodes short, not reaching next node, about as long as loops in proximal whorl of distal nodes. Loops of distal whorls of distal nodes longer, but only in F1 they reaching next flagellomere. Apex of terminal antennal segment with oval protrusion. Palpi 3-segmented. Wing elongate, maximally widened medially. Vein R_{1+2} joining *C* far before wing middle; R_5 strongly curved and joining *C* distinctly behind wing apex. M_{3+4} and forked *Cu* present. Fork of *Cu* situated at same distance from wing base as junction of R_{1+2} to *C*. Tarsal claw simple, bent near the middle almost at right angle; empodium not visible.

Male genitalia with long gonocoxites and slender gonostyli. Gonocoxite with large mediobasal processes. Cerci with rounded lobes, strongly dilated basally. Hypoproct sclerotized, very narrowed apically and strongly enlarged basally, slightly longer and narrower than cerci, almost equal to aedeagus in length. Aedeagus longer than gonocoxite.

Comparison. The new genus is similar to the genus *Trigonodiplosis* Rübsaamen, 1917 with a single species *T. fraxini* Rübsaamen, 1917 from

Figs 36-45. *Stenohypodiplosis sejuncta* sp. n., male. **36**, **37**, genitalia (36, holotype; 37, paratype); **38**, F5; **39**, tarsal claw; **40**, **41**, palpus (40, holotype; 41, paratype); **42**, scape, pedicel and F1; **43**, F3; **44**, F12; **45**, wing. Scales: 0.1 mm.

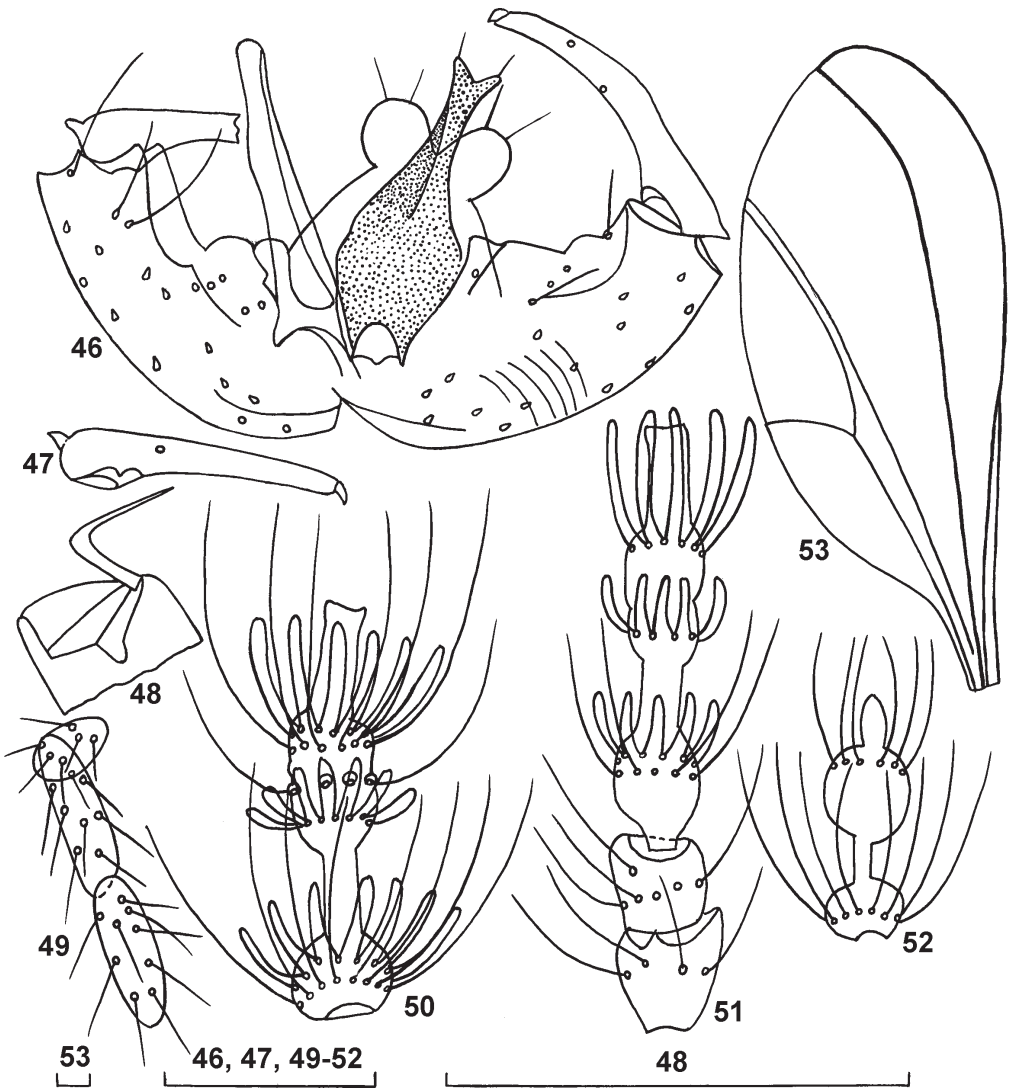
Europe (Skuhravá, 1997) in the shape of male genitalia, but differs from it in the strongly sclerotized hypoproct, the apex of cerci with a constriction and large rounded lobes, simple claws of all tarsi and strongly curved R_5.

Included species. Type species only.

Samaradiplosis devexa Fedotova, sp. n.
(Figs 46-53)

Holotype. ♂, **Russia**, *Primorsk Terr.*, environs of vill. Kamenushka 30 km SE of Ussuriysk, 14.VIII.2001, slide no. 128 7010 WT/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.53 mm; wing length 2.05 mm, wing width 0.85 mm. Antennae with 2+12 segments. Scape 1.3 times as long as pedicel. Basal node of F1 rounded, slightly longer than other ones; distal node of F1 with rather deep constriction. F1 1.1 times as long as F2, 5.2 times as long as wide. Distal node of F1 1.4 times as long as distal neck, 2.1 times as long as proximal node and neck. Distal neck of F1 1.5 times as long as proximal one. F5 4.2 times as long as wide. Distal node of F5 1.27 times as long as distal neck, 1.75 times as long as proximal node and proximal neck. F12 2.8 times as long as wide,



Figs 46-53. *Samaradiplosis devexa* sp. n., male. **46**, genitalia; **47**, gonostylus; **48**, tarsal claw; **49**, palpus; **50**, F5; **51**, scapus, pedicel and F1; **52**, F12; **53**, wing. Scales: 0.1 mm.

with a very narrow neck and rounded distal node. Palpi 3-segmented, ratios of segments 1:1.9:1.7; 3th segment slightly dilated medially, rounded apically. Wing 2.4 times as long as wide. Vein R_5 strongly curved apically, forming large apical cell.

Gonocoxite strongly enlarged basally, twice as long as wide, 1.1 times as long as gonostylus. Gonostylus slightly bent medially and swollen basally, 5.7 times as long as wide. Cerci unsclerotized, strongly enlarged basally, narrowed subapically, with rounded apical lobes and triangular incision, 1.8 times as wide as hypoproct. Hypoproct entirely sclerotized, narrowed apically and strongly enlarged basally, emarginate at apex. Hypoproct at base 1.9 times as wide as aedeagus. Aedeagus slightly enlarged basally, rounded at apex.

Female, larva and biology unknown.

Tribe **LESTODIPLOSINI** Harris, 1966

Genus **Montosidiplosis** Fedotova, gen. n.

Type species: *Montosidiplosis crenata* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head capsule. Head without postvertical peak. Male flagellomeres with two more or less rounded nodes: distal ones slightly wider than proximal ones, without narrowing on all segments. Male flagellomeres with two whorls of circumfilar loops, one simple circumfila and two whorls of setae. Circumfilar loops of flagellomeres short, not reaching next node. Mouthparts with long clypeus. Palpi 4-segmented. Wing elongate, maximally widened medially. Vein R_5 slightly curved and joining *C* distinctly at wing apex; *Cu* present, forked.

Male genitalia with short gonocoxites and relatively short curved gonostyli. Cerci with wide deep apical incision and rounded lobes. Hypoproct very wide, much shorter and narrower than aedeagus. Aedeagus similar to hypoproct in shape, longer than cerci and as long as gonocoxite. Base of gonocoxite with triangular pointed protrusion bearing no microtrichia or short hairs.

Comparison. The new genus is similar to *Lestodiplosis* Kieffer, 1894 (characters according to Skuhravб, 1997), but differs from it in the entire hypoproct, very wide aedeagus, differently-shaped not setose protrusion at the base of gonocoxite, and also in the rounded proximal and distal nodes of flagellomeres and short proximal neck. *Montosidiplosis* is very similar to the Neotropical species *Thripsobremia liothripis* Barnes, 1930 in the shapes of aedeagus and hypoproct (according to Gagnй, 1994), but differs from it in the possession of two (not three) whorls of circumfilar loops of flagellomeres.

Included species. Type species only.

Montosidiplosis crenata Fedotova, sp. n.
(Figs 54-58)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 30.VI.2001, slide no. 59 WT/11 (leg. V. Sidorenko) (ZIAS).

Description. Male. Body length 1.4 mm; wing length 1.8 mm, wing width 0.7 mm. Antennae with 2+11 segments preserved (F12 broken, not examined). Scape slightly transverse. Distal node of flagellomeres slightly wider than basal one, especially in F1. Basal node of F1 longer than other ones, rounded. F1 1.1 times as long as F2, 3.6 times as long as wide. Distal node of F1 equal in length to proximal one, 1.4 times as long as distal neck, and 4.0 times as long as proximal neck. Distal neck 3.0 times as long as proximal neck. F3 3.8 times as long as wide. Distal node of F3 1.2 times as long as proximal one, equal in length to distal neck, and 3.6 times as long as proximal neck. Palpi 4-segmented, ratios of segments 1:1.9:2.2:3.5; 4th segment slightly enlarged distally. Wing 2.4 times as long as wide. Vein R_5 forming large apical cell. Tarsal claw lost.

Gonocoxite slightly enlarged basally, 1.9 times as long as wide, 1.4 times as long as gonostylus. Gonostylus slightly bent distally and swollen basally, 3.1 times as long as wide. Cerci heart-shaped, slightly narrowed basally, with almost rounded lobes, 1.6 times as wide as cerci. Hypoproct wide, finger-like, slightly enlarged basally, rounded apically. Aedeagus rounded apically, slightly narrower than hypoproct.

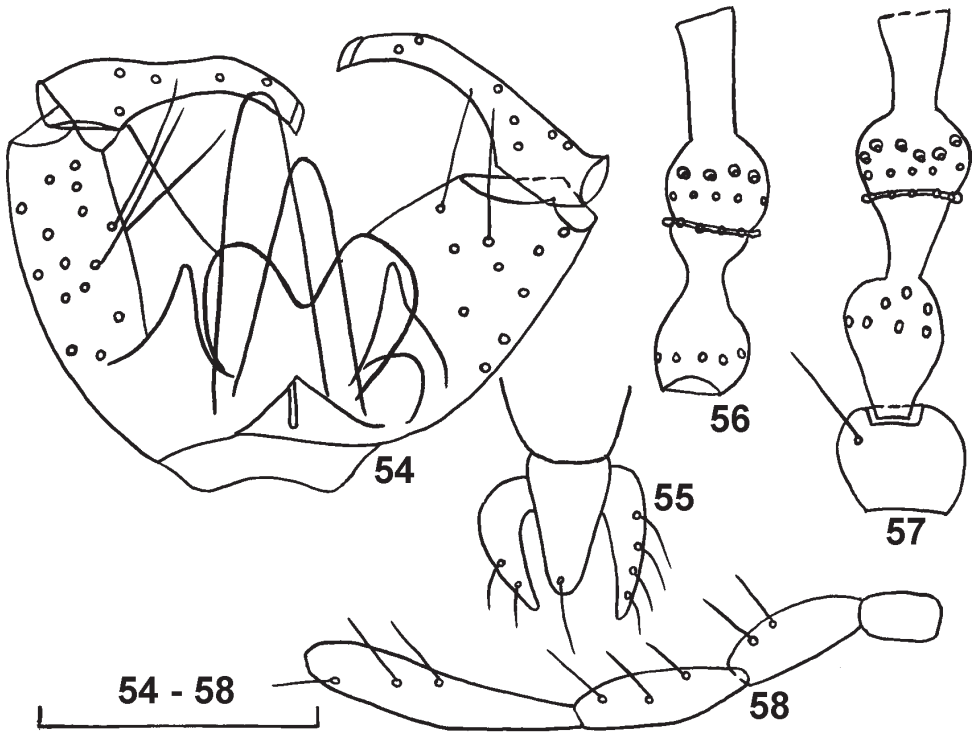
Female, larva and biology unknown.

Genus **Dissimilidiplosis** Fedotova, gen. n.

Type species: *Dissimilidiplosis strumosa* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head capsule. Head with postvertical peak. Male flagellomeres with two nodes: proximal one almost rounded and distal one elongate, with narrowing near middle. Male flagellomeres with three whorls of circumfilar loops and two whorls of setae. Circumfilar loops relatively short, almost reaching next node. Proximal node of F1 rounded. Mouthparts with wide labrum and clypeus. Palpi 1-segmented. Wing elongate, maximally widened medially. Vein R_5 slightly curved, almost straight, joining *C* distinctly at wing apex; *Cu* present, forked. Tarsal claws of all legs simple.

Male genitalia with short gonocoxites and long curved gonostyli. Cerci with wide deep apical incision and rounded lobes. Hypoproct equal to cerci in length, slightly concave apically, setose. Aedeagus strongly sclerotized, swollen at base, longer than gonocoxite. Base of gonocoxite with sclerotized strips.



Figs 54-58. *Montosidiplosis crenata* sp. n., male. **54**, genitalia; **55**, mouthparts; **56**, F3; **57**, pedicel and F1; **58**, palpus. Scales: 0.1 mm.

Comparison. The new genus is similar to *Feltiella* Felt, 1910 (characters according to Skuhravб, 1997), but differs from it in the simple claws of all tarsi, presence of swelling at the base of aedeagus, one-segmented palpi, the apex of hypoproct with a shallow incision, and equal length of the cerci and hypoproct. *Dissimilidiplosis* is very similar to *Mycodiplosis* Rьbsaamen, 1895 (characters according to Skuhravá, 1997) in the shapes of the cerci and hypoproct but differs from it in the aedeagus widened proximally and sclerotized (thin and unsclerotized in *Mycodiplosis*), one-segmented (not four-segmented) palpi, the absence of deep apical incision on the hypoproct, shortened and widened antennal segments.

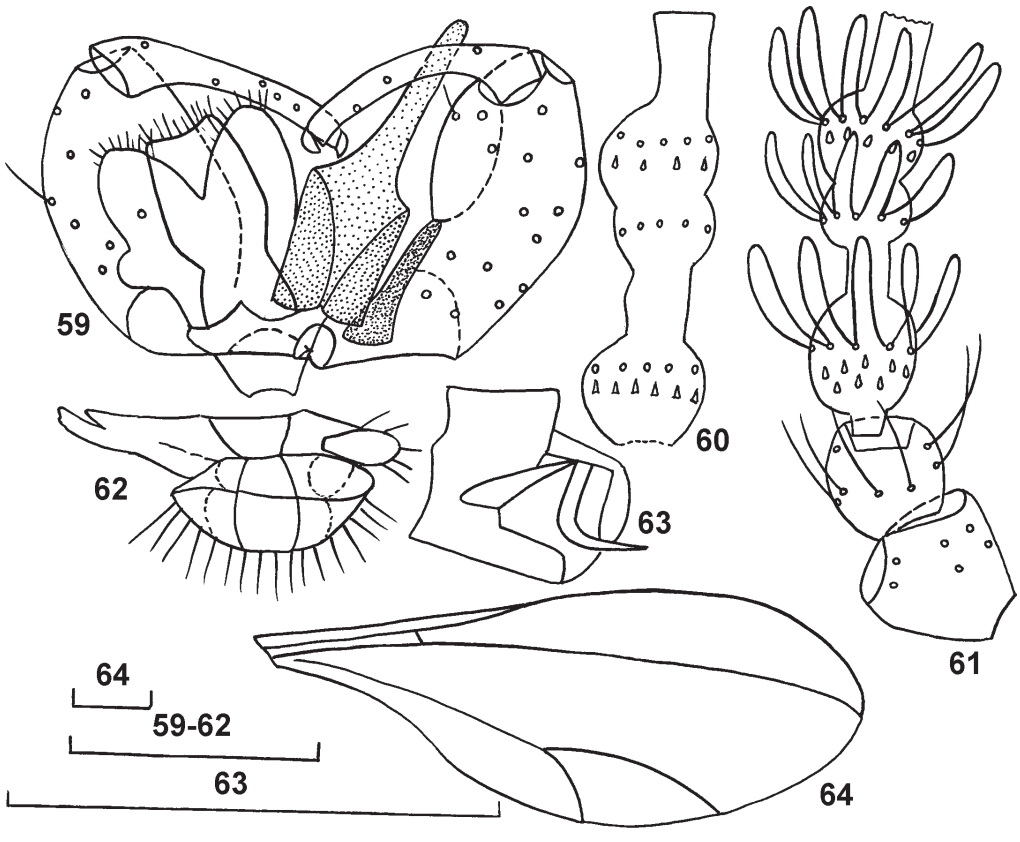
Included species. Type species only.

Dissimilidiplosis strumosa Fedotova, sp. n. (Figs 59-64)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 30.VI.2001, slide no. 158 MT 1/1 (leg. V. Sidorenko) (ZIAS).

Description. Male. Body length 0.74 mm; wing length 1.26, wing width 0.5 mm. Pedicel rounded; scape 1.2 times as long as pedicel. Most part of flagellum broken (only F1 and F2 examined). Distal nodes of flagellomeres elongate, with deep constriction; proximal nodes almost rounded. Circumfilar loops of flagellomeres short, of almost equal length in different whorls, reaching apices of respective proximal and distal necks. F1 3.9 times as long as wide, 1.1 times as long as F2. Distal node of F1 1.6 times as long as distal neck, 1.7 times as long as proximal neck and 1.1 times as long as proximal node. Palpi 1-segmented, 1.9 times as long as wide, rounded apically. Wing 2.6 times as long as wide, maximally widened proximally. R_5 almost straight, with very large cell.

Gonocoxite strongly convex laterally, 1.5 times as long as wide, 1.2 times as long as gonostylus, with sclerotized mediobasal area. Gonostylus about 4.5 times as long as wide, slightly curved proximally, with a swelling on dorsal side. Cerci with very wide and deep incision between rounded long lobes, 1.9 times as wide as hypoproct.



Figs 59-64. *Dissimilidiplosis strumosa* sp. n., male. **59**, genitalia; **60**, F2; **61**, scape, pedicel and F1; **62**, mouthparts; **63**, tarsal claw; **64**, wing. Scales: 0.1 mm.

Hypoproct moderately sclerotized, with a constriction in basal half, enlarged distally, with very shallow apical incision. Aedeagus with thin cylindrical apical part and very wide subquadrate basal part.

Female, larva and biology unknown.

Genus **Tonsidiplosis** Fedotova, gen. n.

Type species: *Tonsidiplosis incurva* Fedotova, sp. n.

Diagnosis. Eyes very large, occupying nearly entire surface of head capsule. Head with postvertical peak. Antennae with 2+12 segments. Pedicel and scape unsclerotized. Male flagellomeres with two nodes: transverse proximal one and elongate distal one, with very slight narrowing on all segments. Male flagellomeres with three whorls of circumfilar loops and two whorls of setae. Circumfilar loops relatively short, not reaching next node. Apex of terminal antennal segment without protrusion, tapered or rounded apically. Necks of last flagellomeres longer than necks of mid flagellomeres. Palpi 2-4-segmented. Wing almost rounded, maximally widened medially. Vein R_{1+2} joining *C* far before wing middle; R_5 almost straight and joining *C* distinctly at wing apex. *Cu* forked; fork situated farther from wing base than junction of R_{1+2} to *C*. Tarsal claw simple, semicircularly curved; empodium equal to claw in length or shorter.

Male genitalia with a mediobasal sclerotized plate, long gonocoxites and slender gonostyli. Gonocoxite broad, laterally almost straight or roundly convex, without mediobasal cavity on inner side. Gonostylus shallowly arcuate, slightly enlarged basally. Cerci bilobed and emarginate. Hypoproct entire, oval, broadly rounded apically, equal to cerci in length. Aedeagus elongate, almost equal to gonocoxite in length, strongly enlarged basally, with obtuse or pointed apex, sclerotized stronger than other parts of genitalia except short mediobasal plate.

Comparison. The new genus differs from other known genera in the presence of short sclerotized plate at the base of the genitalia, straight aedeagus, gonocoxite without incision on inner side, hypoproct rounded apically, equal length of the cerci and hypoproct, and straight R_5 joining to wing apex (not before apex). The new genus is most closely related to the cosmopolitan genus *Trisopsis* Kieffer, 1912 including 10 Palaearctic species (Skuhravб, 1997), but differs from it in the eyes not divided laterally, pyriform (not rounded) shape of distal nodes of all flagellomeres, more enlarged gonocoxite, long thin gonostylus, and very enlarged base of the aedeagus. The new genus differs from *Lestodiplosis* Kieffer, 1894 in the sclerotized aedeagus with differently-shaped apex, presence of short mediobasal plate and absence of long triangular setose lobes at the bases of gonocoxites, equal cerci and hypoproct, and almost straight R_5 joining C distinctly at wing apex.

Notes. Marikovskij (1960) described *Plagiodiplosis tjanshanica* from the mountains of Kazakhstan and Kirghizstan. Presently, the genus *Plagiodiplosis* Kieffer, 1913 is considered as a synonym of *Trisopsis* Kieffer, 1912 (Harris, 1980; Skuhravá, 1986; Gagné, 2004). Harris (1980) synonymized *Plagiodiplosis* (with the type species *Lestodiplosis nana* Kieffer, 1911 from the Seychelles) with *Triopsis*. Skuhravá (1986) placed *P. tjanshanica* in the genus *Lestodiplosis*. Recently Gagné (2004) gave *P. tjanshanica* under the genus *Lestodiplosis.* According to the original description, the eyes of *P. tjanshanica* are not divided into three groups, one large on vertex and two smaller laterally, and the gonocoxites are lacking mediobasal lobes (diagnostic characters of *Trisopsis* in Skuhravá, 1997). Taking into account these characters and some additional ones (cerci, hypoproct and sclerotized aedeagus), *Plagiodiplosis tjanshanica* should be transferred to the genus *Tonsidiplosis*.

Included species. *Tonsidiplosis incurva* sp. n., *T. rostriformis* sp. n., *T. tuberculata* sp. n., and *T. tjanshanica* (Marikovskij, 1960), **comb. n.**

Tonsidiplosis incurva Fedotova, sp. n.
(Figs 65-71)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 16.VII.2001, slide no. WT 126/7010/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.06 mm; wing length 1.33 mm, wing width 0.55 mm. Scape 1.5 times as long as pedicel. F1 1.1 times as long as F2, with longer basal node. F1 4.8 times as long as wide, distal neck 1.2 times as long as distal node. Distal node of F1 almost equal in length to proximal one and 1.1 times as long as proximal neck. F5 about 3.8 times as long as wide. Distal node of F5 1.4 times as long as proximal one, 1.2 times as long as distal neck and 1.1 times as long as proximal neck. F12 about 3.8 times as long as wide, with cone-shaped apex. Palpi 2-segmented, ratio of segments 1:1.7; 2nd segment thin, broadly rounded apically. Wing 2.2 times as long as wide.

Gonocoxite with broad apex, 2.2 times as long as wide, 1.5 times as long as gonostylus. Gonostylus slightly curved basally, about 5.5 times as long as wide. Cerci with oval lobes, triangular apical incision and rounded lateral sides, 1.7 times as wide as hypoproct. Hypoproct moderately sclerotized, oval, with entire apex and a group of short setae. Aedeagus strongly enlarged basally and slightly enlarged apically. Triangular sclerotized plate bent to apex; its apical part with strongly sclerotized area having distinct border on ventral side.

Female, larva and biology unknown.

Comparison. See the key to species of *Tonsidiplosis* below.

Tonsidiplosis rostriformis Fedotova, sp. n.
(Figs 72-77)

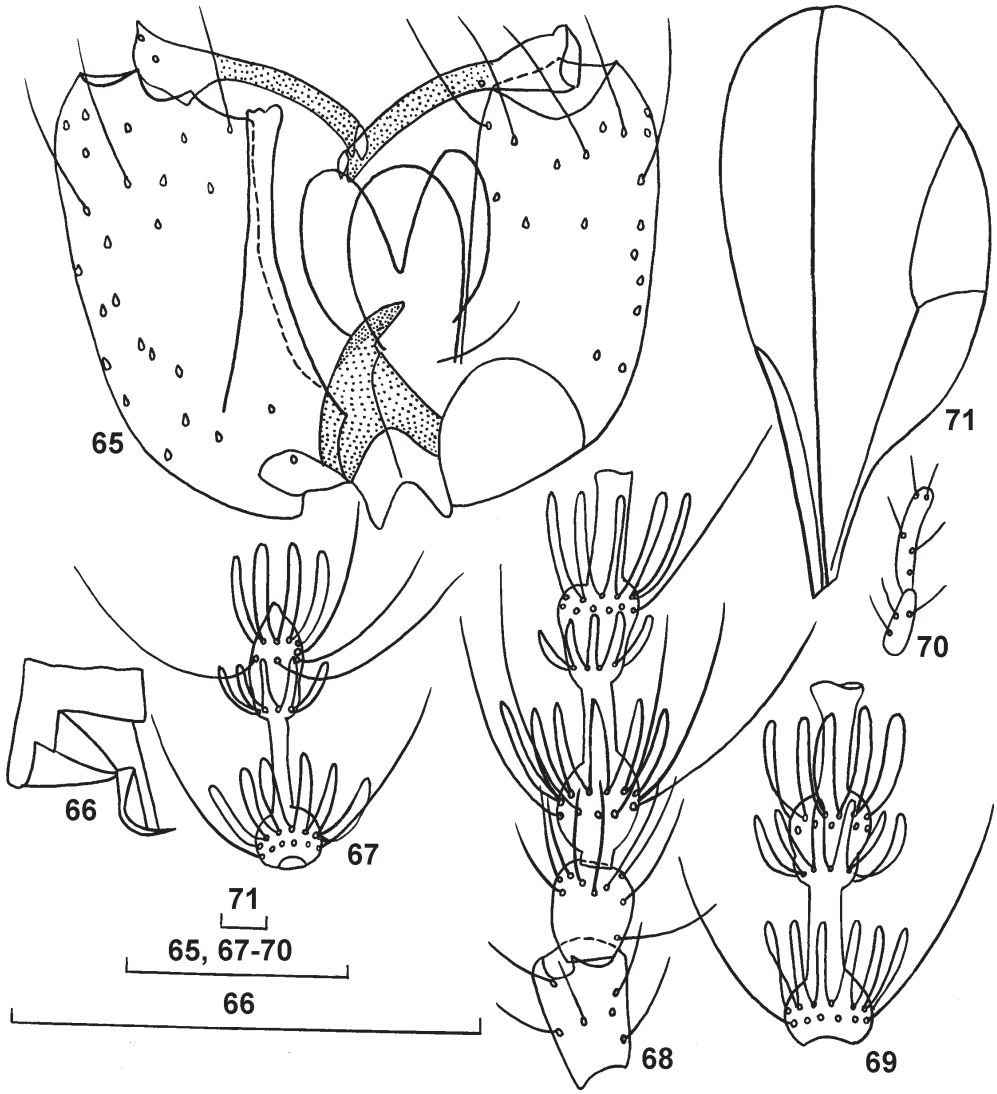
Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 16.VII.2001, slide no. WT 117/7010/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.7 mm; wing length 1.73 mm; wing width 0.73 mm. Scape 1.5 times as long as pedicel. Flagellomeres with dark basal node and apex of distal neck. F5 4.3 times as long as wide, distal neck 1.1 times as long as distal node. Distal node of F5 1.4 times as long as proximal one and 1.3 times as long as proximal neck. F12 about 3.9 times as long as wide, with elongate conical apex. Palpi 3-segmented, ratios of segments 1:1.5:1.8; 3nd segment almost oval, rounded apically. Wing with dark spots along veins, 2.5 times as long as wide, slightly widened distally.

Gonocoxite almost parallel-sided, with sclerotized spots in middle part, 2.6 times as long as wide, 1.4 times as long as gonostylus. Gonostylus sclerotized distally, slightly curved, 7.7 times as long as wide. Cerci with oval lobes, triangular incision and rounded lateral sides, 2.3 times as wide as hypoproct. Hypoproct moderately sclerotized, having same shape as lobes of cerci, oval, with entire apex bearing a pair of long setae. Aedeagus slightly curved, slightly widened basally, tapered apically. Mediobasal sclerotized plate subtriangular, pointed on lateral side, covered with dark spine-like setae in apical half, with strongly sclerotized area at apex.

Female, larva and biology unknown.

Comparison. See the key to species of *Tonsidiplosis* below.

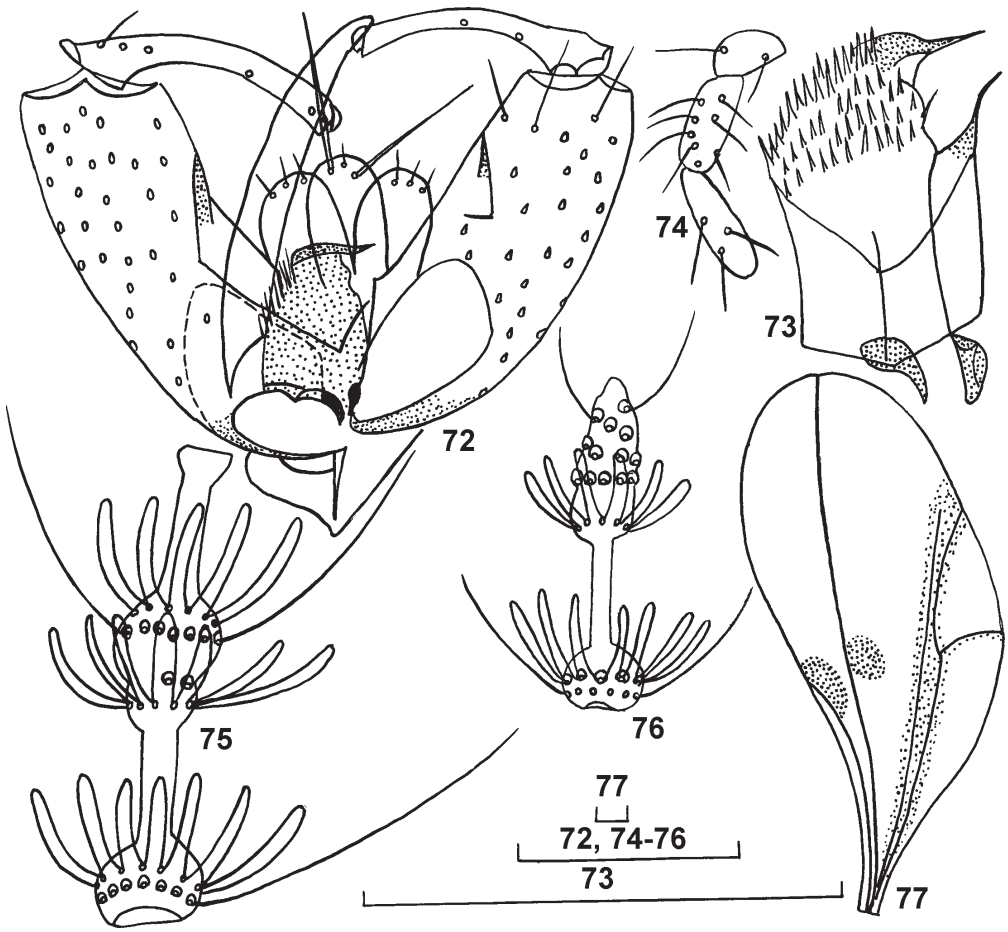


Figs 65-71. *Tonsidiplosis incurva* sp. n., male. **65**, genitalia; **66**, tarsal claw; **67**, F12; **68**, scapus, pedicel and F1; **69**, F5; **70**, palpus; **71**, wing. Scales: 0.1 mm.

Tonsidiplosis tuberculata Fedotova, sp. n.
(Figs 78-84)

Holotype. ♂, **Russia**, *Primorsk Terr*., environs of vill. Kamenushka 30 km SE of Ussuriysk, 16.VII.2001, slide no. WT 148/7010/31 (leg. Z. Fedotova) (ZIAS).

Description. Male. Body length 1.2 mm; wing length 1.42 mm; wing width 0.55 mm. Scape 1.4 times as long as pedicel. Flagellomeres entirely dark. F1 4.6 times as long as wide. Distal node of F1 1.1 times as long as proximal one, 1.4 times as long as proximal neck and 1.1 times as long as distal neck. F2 hardly longer than F1. F5 4.5 times as long as wide. Distal node of F5 1.8 times as long as proximal one, 1.3 times as long as proximal neck and 0.9 times as long as distal neck. F11 about 1.5 times as long as F12. F12 4.6 times as long as wide, with slightly enlarged rounded apex. Palpi 4-segmented, ratios of segments 1:1.1:1.9:1.7; 4th segment almost oval, rounded apically. Wing without dark spots along veins, 2.4 times as long as wide, slightly widened medially. Vein R_{1+2} running into anterior wing margin far before its middle; R_5 almost straight and joining with *C* distinctly at wing apex.



Figs 72-77. *Tonsidiplosis rostriformis* sp. n., male. **72**, genitalia; **73**, mediobasal plate of genitalia; **74**, palpus; **75**, F1; **76**, F12; **77**, wing. Scales: 0.1 mm.

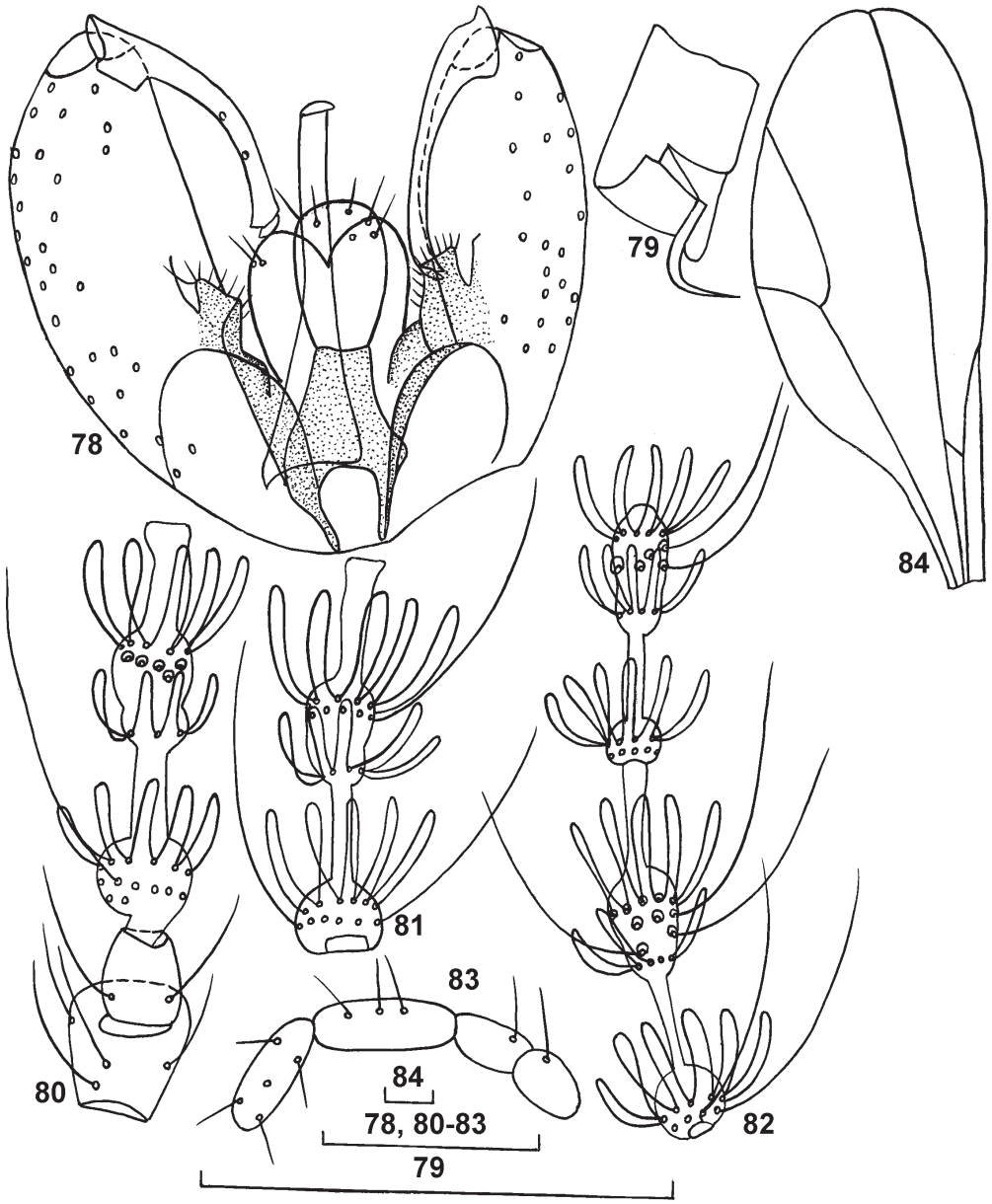
Gonocoxite almost oval, with obtuse tubercles and sclerotized spots in middle part, 2.6 times as long as wide, 1.9 times as long as gonostylus. Gonostylus slightly curved and distally completely sclerotized, 3.3 times as long as wide. Cerci with oval lobes, triangular incision and rounded lateral sides, 1.8 times as wide as hypoproct. Hypoproct moderately sclerotized, having almost same shape as lobes of cerci, oval, with entire apex bearing group of short setae. Aedeagus almost straight, more distinctly sclerotized than other parts of genitalia, with obtuse apex, enlarged basally. Mediobasal sclerotized plate trapezoid, without darker areas. Base of genitalia with a pair of long sclerotized protrusions.

Female, larva and biology unknown.

Comparison. See the key to species of *Tonsidiplosis* below.

Key to species of *Tonsidiplosis* (males)

1. Mediobasal sclerotized plate with obtuse apex (Fig. 78). Inner side of gonocoxites with large sclerotized tubercles. Apex of F12 rounded (Fig. 82). Palpi 4-segmented (Fig. 83). F5 4.5 times as long as wide; its distal node 1.8 times as long as proximal one (Fig. 81). – Body length 1.2 mm . . . **T. tuberculata** sp. n.
– Mediobasal sclerotized plate with pointed apex (Figs 65, 72) and sometimes with numerous spines (Fig. 72). Inner side of gonocoxites without tubercles. Apex of F12 pointed (Figs 67, 76). Palpi 2-3-segmented (Figs 70, 74) 2
2. Aedeagus pointed at apex. Hypoproct with a pair of long setae at apex (Fig. 72). F5 4.3 times as long as wide; its distal node 1.4 times as long as proximal one (Fig. 75). – Body length 1.7 mm . . . . . **T. rostriformis** sp. n.
– Aedeagus obtuse at apex 3
3. Hypoproct with a group of short setae, without strips. F5 about 3.8 times as long as wide; proximal neck



Figs 78-84. *Tonsidiplosis tuberculata* sp. n., male. **78**, genitalia; **79**, tarsal claw; **80**, scape, pedicel and F1; **81**, F5; **82**, F11 and F12; **83**, palpus; **84**, wing. Scales: 0.1 mm.

1.2 times as long as proximal node; distal node of F5 with narrowing (Fig. 69). – Body length 1.1 mm . . . . . **T. incurva** sp. n.

– Hypoproct without setae, with transverse strips. Proximal neck of F5 shorter than proximal node; distal node of F5 without narrowing. – Body length 1.7-2.1 mm . . . **T. tjanshanica** (Marikovskij), **comb. n.**

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