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### NEW GALL MIDGES OF THE TRIBES BRACHINEURINI EDWARDS, 1937 AND STOMATOSEMATINI MAMAEV, 1968 (DIPTERA, CECIDOMYIIDAE) FROM THE RUSSIAN FAR EAST

### Z. A. Fedotova<sup>1)</sup> and V. S. Sidorenko<sup>2)</sup>

- 1) Samara Academy of Agriculture, Ust-Kinelskii, Samara Province, 446442, Russia
- 2) Institute of Biology and Soil Science, Far East Branch of the Russian Academy of Sciences, Vladivostok-22, 690022, Russia

Five new genera and 11 species of gall-midges from tribes Brachineurini and Stomatosematini: Alatostyla velutina gen. et sp. n., Rhizomyia umbra sp. n., Rh. propensa sp. n., Rh. operculata sp. n., Rh. papposa sp. n., Stabiliola serrata gen. et sp. n., Volsatiola aequa gen. et sp. n., Compositola competiva gen. et sp. n., Stomatosema medularis sp. n., S. breviseta sp. n. and S. cuneata sp. n. are described from Primorskii krai. New combination is proposed: Rhizomyia applanata Fedotova et Sidorenko, 2005 = Acinacistyla applanata, comb. n.

KEY WORDS: Diptera, Cecidomyiidae, gall midges, new genera, new species, new combination, Russian Far East.

3. А. Федотова<sup>1)</sup>, В. С. Сидоренко<sup>2)</sup>. Новые галлицы из триб Brachineurini Edwards, 1937 и Stomatosematini Mamaev, 1968 (Diptera, Cecidomyiidae) с Дальнего Востока России // Дальневосточный энтомолог. 2006. N 163. C. 1-28.

Из Приморского края описаны Alatostyla velutina gen. et sp. n., Rhizomyia umbra sp. n., Rh. propensa sp. n., Rh. operculata sp. n., Rh. papposa sp. n., Stabiliola serrata gen. et sp. n., Volsatiola aequa gen. et sp. n., Compositola competiva gen. et sp. n., Stomatosema medularis sp. n., S. breviseta sp. n. и S.

*cuneata* **sp. n.** Предложена новая комбинация: *Rhizomyia applanata* Fedotova et Sidorenko, 2005 = *Acinacistyla applanata*, **comb. n.** 

- 1) Самарская сельскохозяйственная академия, пос. Усть-Кинельский, Самарская область, 446442, Россия.
  - 2) Биолого-почвенный институт ДВО РАН, Владивосток-22, 690022, Россия.

#### INTRODUCTION

This paper is devoted to the descriptions of new taxa of gall midges collected by various type of traps during study of the forest ecosystems in Lazovskii Nature Reserve in 2005. Holotypes of new species are deposited in the Zoological Institute, St.-Petersburg, Russia (ZISP). The abbreviations used in the descriptions and figure legends are as follows: F1, F2, ...F10 – length of flagellomeres 1, 2 ... 10; LT – light trap, MT – Malaise trap, YT – yellow pan trap.

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#### TRIBE BRACHINEURINI EDWARDS, 1937

DIAGNOSIS. Antennae with 10 flagellomeres, tarsal claws narrow, curved near midlength; VII and VIII male abdominal tergites reduced and strongly sclerotized, linear; VII and VIII sternites shorter than other ones; parameres short, sclerotized, free, glabrous, each with one to three setae. Female postabdomen usually not protractile, apically with three lamellae, two large upper ones and one small lower one.

GENERA INCLUDED. Cosmopolitan tribe included 12 genera and 65 species.

#### Genus Alatostyla Fedotova et Sidorenko, gen. n.

Type species – *Alatostyla velutina* Fedotova et Sidorenko, sp. n.

DIAGNOSIS. Body, wing veins, tarsi and antennae covered by scales, 1.3-1.5 mm. Basal nodes of male flagellomeres enlarged, with rear swollen peritremae of setae, stem of mid flagellomeres enlarged apically. Palpi 3-segmented. Paraglossa pointed. Tarsal claws dentated, empodium shorter than claw. Wing slightly rounded, maximally enlarged proximally. Vein  $R_{1+2}$  joining C far before wing middle,  $R_{4+5}$  joining C distinctly in wing apex. Vein Cu simple, whole (not disapperes before wing margin), pCu and Rs developed. Pores on vein  $R_{1+2}$  and  $R_{4+5}$  present. Gonocoxites almost parallel-sided or oval, widened, with stripes of scleratization. Gonostylus forked, strongly enlarged apically, narrowed basally, shorter than gonocoxites. Cerci almost rounded or elongated, with rounded lobes and narrow or wide triangular excision. Hypoproct slightly sclerotized, with thin and long lobes, almost parallel-sided. Aedeagus triangular, narrowed before apex, slightly sclerotized. Base of genitalia with two hook-like protrusion.

RELATIONSHIPS. New genus resembles to *Brachineurina* Mamaev, 1967 by simple vein Cu; presence of long stem on flagellomeres and several peritremae on basal node; less enlarged cerci, but differs by form gonostyles, excised hypoproct (whole in *Brachineurina*); very wide and swollen medially aedeagus; straight vein  $R_{4+5}$  joining in wing apex, presence of pCu, Rs and dentated claw.

SPECIES INCLUDED. A type species only.

# *Alatostyla velutina* Fedotova et Sidorenko, sp. n. Figs 1-8

MATERIAL. Holotype –  $\sigma$  (slide 290/8071/1): Russia, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', river shore, MT, 16-17.VII.2005 (V. Sidorenko) (ZISP). Paratypes – 2  $\sigma$  (slide 290/8071/2-3): the same data as holotype (IBSS, SAA)

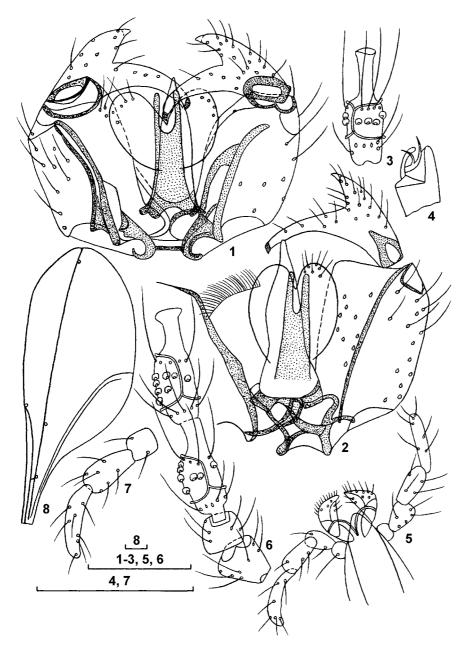
DESCRIPTION. MALE. Body length 1.5-1.3 mm, wing length 1.5 mm, wing width 0.6-0.7 mm. Eye bridge medially 5 facets broad, but divided by narrow stripe without facets. Last segments of flagellum lost. F1 2.8 times as long as wide, basal node 2.9 times longer than stem. F2 1.1 times shorter than F1. F5 2.9 times as long as wide, basal node 1.4 times longer than stem. Palpi 3-segmented, its ratio 1:2:2.5 or 1:1.4:1.9, last segment longer and narrower than F1, palpiger developed. Tarsal claws basally with strongly curved denticle, empodium shorter than claw. Wing with long and narrow basal part, length 2.7 times as long as wide. Vein  $R_{1+2}$  2.5 times shorter than wing;  $R_{4+5}$  almost straight. Vein pCu slightly shorter than simple and whole Cu. 1st pore on vein  $R_{4+5}$  presents before Rs; 2nd – behind 1/3 wing length, 3rd – near apex. Gonocoxites wide, 1.9-2.0 times as long as wide. Gonostylus stronger sclerotized than gonocoxites, especially basally, 1.4-1.5 times shorter than gonocoxites, 2.3-2.4 times as long as wide. Cerci cordiformed, reached to apex of gonocoxites. Hypoproct 2.2-2.4 times narrower than cerci, slightly sclerotized. Aedeagus pointed apically.

FEMALE unknown.

RELATIONSHIPS. New species differs from other known species Brachineurini by forked gonostylus, sparse peritremae and joining  $R_{4+5}$  in wing apex. New species closely related to *Rhizomyia selecta* Mamaev, 1967 but differs by dorsal triangular protrusion of gonostyles; elongated aedeagus; narrow lobes of narrow hypoproct; cordiform wide cerci, rounded basally; more long stem of flagellomeres (stem of F1 1.5 times shorter than node); absence of forked Cu (additional vein  $M_{3+4}$ ).

ETYMOLOGY. Species denominated for presenting the numerous velvety scales on body surface.

DISTRIBUTION. Russia (Primorskii krai).



Figs 1-8. *Alatostyla velutina* sp. n., male: 1, 2) genitalia (variation of shape); 3) F3; 4) tarsal claw; 5) mouth parts; 6) scape, pedicel, F1 and F2; 7) palpi; 8) wing. Scale line - 0.1 mm.

#### Genus Rhizomyia Kieffer, 1898

Rhizomyia Kieffer, 1898: 56. [Type species – Rhizomyia perpelexa Kieffer, 1898: 57]. Coccomorpha Rübsaamen, 1899: 534. [Type species – Coccomorpha circumspinosa Rübsaamen, 1899: 534].

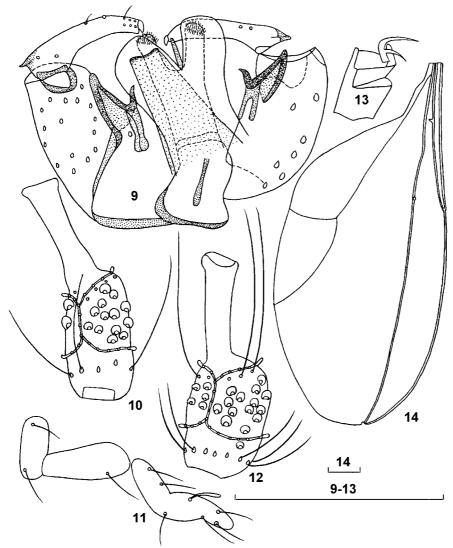
DIAGNOSIS. Eye bridge unprominent, eyes almost completely covered head or eye bridge very wide. Vein  $R_{4+5}$  straight, joining costa at wing apex; Cu forked. Antennae 2+9-10-segmented. Basal nodes of flagellomeres enlarged, with numerous swollen peritremae of setae, in male subcylindrical, with long stems, female flagellomeres subcilindrical, with short stems; stem of male mid flagellomeres longer, equal or slightly shorter than basal node; claws with denticle. Holarctic and Oriental genus with 34 species, 20 of them Palaearctic ones (Skuhravá, 1997; Mamaev, 1998; Mamaev, Zaitzev, 2002; Fedotova, 2004; Gagné, 2004; Fedotova, Sidorenko, 2005).

SPECIES INCLUDED. Previously 6 species were recorded from Russian Far East, 4 species are described below.

# *Rhizomyia umbra* Fedotova et Sidorenko, sp. n. Figs 9-14

MATERIAL. Holotype − ♂ (slide 318/8090/1): Russia, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, river shore, 17-18.VII.2005 (V. Sidorenko) (ZISP).

DESCRIPTION. MALE. Body length 1.08 mm, wing length 1.35 mm, wing width 0.58 mm. Eye bridge medially 9 facets broad. Antennae 2+9-segmented. Stem of mid flagellomeres slightly shorter than basal node, later with 2 rings of sensorial filae, connected by comissures. F3 2.7 times as long as wide, basal node 1.1 times as long as stem. F5 3.5 times as long as wide, basal node 1.3 times as long as stem. F9 narrowing apically. Palpi 3-segmented, its ratio 1:1.4:1.9, last segment enlarged and curved medially, pointed apically. Tarsal claws dentated, empodium as long as claw. Wing wide, slightly rounded ventrally, length 2.2 times as long as wide. Vein  $R_{1+2}$  joining C far before wing middle, 2.5 times shorter than wing length,  $R_{4+5}$  curved basally, with pore behind bend, joining C slightly before wing apex. Fork of Cu situated at more long distance from the base of wing than point of joining  $R_{1+2}$  to C. Gonocoxites strongly enlarged basally and slightly rounded laterally and medially, 1.9-2.0 times as long as wide, with wide medial excision, sclerotized marginally as thorn connected with basal sclerotized stripes. Surface of thorn slighter sclerotized than margins. Gonostylus slightly curved proximally, with additional narrow dorso-basal sclerotized protrusion, 1.5 times shorter than gonocoxites. Cerci with wide lobes, enlarged apically and triangular wide excision. Hypoproct 1.7 times narrower than cerci, with elongated lobes, divided by wide oval excision, as long as cerci, with apical numerous spinules. Aedeagus thin, needle-form, slightly sclerotized. Additional dorsal lobe trapezoidal, as long as hypoproct, slightly sclerotized.



Figs 9-14. *Rhizomyia umbra* sp. n., male: 9) genitalia; 10) F5; 11) palpi; 12) F3; 13) claw; 14) wing. Scale line - 0.1 mm.

#### FEMALE unknown.

RELATIONSHIPS. New species differs from other known species by shape of hypoproct lobes, covered by spinules; medial sclerotized protrusion of gonocoxites and thin aedeagus. New species closely related to *Rh. turriformis* Fedotova et Sidorenko, 2005 but differs by more long basal node of stem; narrow gonocoxites (length 1.9-2.0 as long wide, not 1.2 times as *Rh. turriformis*); short and curved gonostylus; enlarged wing with narrow dorsal cell near apex; elongated 1st and 2nd palpal segments and small body size.

DISTRIBUTION. Russia (Primorskii krai).

## Rhizomyia propensa Fedotova et Sidorenko, sp. n.

Figs 15-22

MATERIAL. Holotype – & (slide 320/8105/1): Russia, Primorskii krai, Lazovskii Reserve, Proselochnaya bay, MT, 30-31.VIII.2005 (V. Sidorenko) (ZISP). Paratype – 1 & (slide 320/8090/2), Koreiskaya pad', MT, river shore, 17-18.VII.2005 (V. Sidorenko) (IBSS).

DESCRIPTION. MALE. Body length 1.0-1.2 mm, wing length 0.9 mm, wing width 0.52-0.6 mm. Eyes almost completely covered head. Stem of mid flagellomeres slightly longer than basal node. F1 1.2 times shorter than F2, its length 2.7 times as long as wide, basal node 2.1 times longer than stem. F4 3.5 times as long as wide, basal node 1.1 times shorter than stem. Palpi 3segmented, its ratio 1:2.5:2.9, last segment enlarged medially, rounded apically. Labrum excavated. Tarsal claws with very long curved denticle, empodium with shorter claw. Wing very long at the base, maximally enlarged medially, slightly rounded ventrally, length 2.4 times as long as wide. Vein  $R_{1+2}$  joining C far before wing middle, 2.4 times shorter than wing length,  $R_{4+5}$  curved basally, with pore behind bend, joining C slightly before wing apex. Fork Cu situated at more long distance from the base of wing than point of joining  $R_{1+2}$  to C. Gonocoxites strongly enlarged basally and almost straight laterally, 1.6-1.8 times as long as wide, with wide basal excision. Gonostylus 3.6-4.6 times as long as width, almost straight or slightly curved proximally, 1.1-1.2 times shorter than gonocoxites. Cerci with wide oviform lobes, divided by triangular wide excision. Hypoproct 1.7-2.2 times narrower than cerci, with triangular lobes and excision between it, parallel-sided or cordiform, with apical numerous spinules. Aedeagus thin, strongly sclerotized, enlarged basally.

FEMALE unknown.

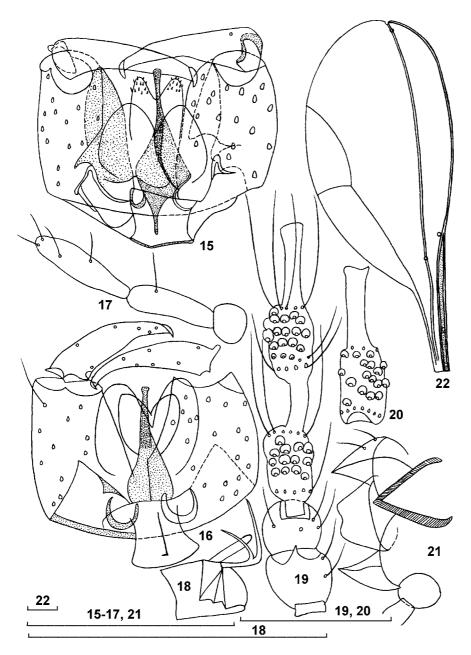
RELATIONSHIPS. New species related to *Rh. umbra* sp. n. by hypoproct lobes, covered by spinules and thin sclerotized aedeagus but differs by strongly swollen basally aedeagus; absence of additional dorsal trapezoidal lobe and medial slightly sclerotized protrusions of gonocoxites; more long neck of flagellomeres than narrow basal node; more wide basally, almost straight or slightly curved gonostylus; more enlarged wing with narrow and long base; more long 2nd segments of palpi and small body size.

DISTRIBUTION. Russia (Primorskii krai).

# Rhizomyia operculata Fedotova et Sidorenko, sp. n. Figs 23-41

MATERIAL. Holotype –  $\sigma$  (slide 317/8101/1): Russia, Primorskii krai, Lazovskii Resrve, Koreiskaya pad', MT, forest, 3-4.IX.2005 (V. Sidorenko) (ZISP). Paratypes – 1  $\sigma$ , 2  $\circ$  (slide 317/8106/2-4): the same data (IBSS, SAA).

DESCRIPTION. MALE. Body length 1.43-1.63 mm, wing length 1.93-2.0 mm, wing width 0.8-0.85 mm. Scape, pedicelus and flagellomeres very strongly sclerotized.



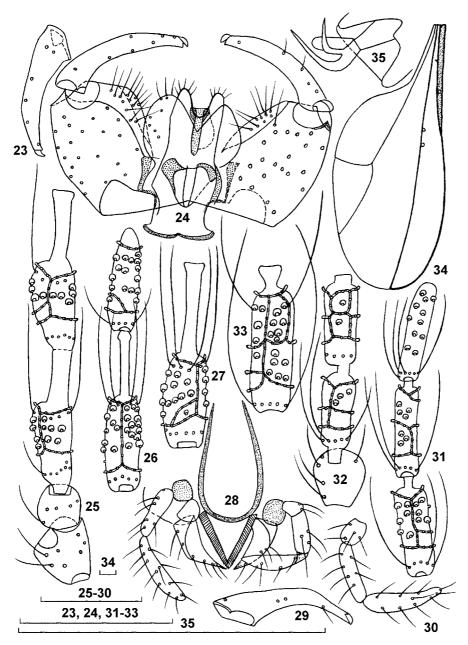
Figs 15-22. *Rhizomyia propensa* sp. n., male: 15, 16) genitalia (variation of shape); 17) palpi; 18) tarsal claw; 19) scape, pedicel, F1 and F2; 20) F4; 2), mouth parts; 22) wing. Scale line - 0.1 mm.

Antennae 2+10-segmented. Stem of mid flagellomeres as long as node. Scape 1.3 times longer than pedicel. F1 3.8 times as long as wide, basal node 1.7 times shorter than stem. F2 1.1 times longer than F1, but wider. F5 3.8 times as long as wide, basal node equal stem. F10 3.6 times as long as wide, narrowed near apex, 1.5 times shorter than F9. Palpi 3-segmented, its ratio 1:2.4:4 or 1:1.6:2.2, 1st segment almost rounded, strongly sclerotized, last segment narrowed at the end. Labrum triangular. Tarsal claws with very thick and long dentacle, empodium shorter than claw. Wing strongly rounded and maximally enlarged medially, length 2.5 times as long as wide. Vein  $R_{1+2}$  joining C far before wing middle, 2.5 times shorter than wing;  $R_{4+5}$  almost straight, joining C distinctly at wing apex. Vein Cu almost rectangularly forked. Wing cell between C and  $R_{1+2}$  slightly sclerotized. Gonocoxites without medio-basal lobes, almost widely ovale, 1.5 times as long as wide. Gonostylus slightly curved and slightly enlarged basally, as long as gonocoxites, 4.5 times as long as wide. If gonostylus enlarged basally, it length 3.3 times as long as wide. Cerci cordiform; with wide triangular emargination between unsclerotized ovoid lobes, 2.0 times wider than hypoproct. Hypoproct slightly sclerotised, parallelsided, with two lateral long protrusions, rounded apically and deeply excised. Hypoproct narrowed near middle, 2.6 times narrower than cerci. Aedeagus short, triangular, truncated apically and fusiform basally, slightly sclerotized, apically with spot of sclerotization. Base of genitalia with wide sclerotized plate and marginal sclerotized stripes at base of plate. Abdominal tergites with distal strongly sclerotized stripe, sternites completely divided by white stripe on two sclerites proximal and distal.

FEMALE. Eye bridge medially 5-6 facets broad. Body length 1.4-1.5 mm, wing length 1.9-2.0 mm, wing width 0.8-0.85 mm. Antennae 2+10-segmented. All segments with short stem, basal node almost parallel-sided or slightly enlarged apically, densely covered by thin macrotrichia, with numerous swollen peritremae of setae. Pedicel rounded. F1 2.9 times as long as wide, basal node 7.8 times shorter than stem. F2 slightly shorter than F1. F5 3.9 times as long as wide, stem 6.5 times shorter than basal node. F10 4.5 times as long as wide, thin, parallel-sided, rounded apically, equal length with F9. F8 slightly wider than F9 and F10, stem longer. Palpi 3-segmented, its ratio 1:2.8:4 or 1:2.9:3.8, last segment slightly enlarged laterally, rounded apically. Tarsal claws less curved than in male, empodium shorter than claw. Ovipositor short, not telescopic, with large dorsal plate and small ventral one. Both plates with deep excision. Ventral plate 1.8 times narrower than dorsal plate. One lobe of dorsal plate 1.6-1.8 times as long as wide; ventral plate 1.9 times shorter it.

RELATIONSHIPS. New species differs from other known species by short sclerotized aedeagus and thin flagellomeres in male and female, more closes to *Rh. arsenjevi* (Fedotova, 2004) (Fedotova, Sidorenko, 2005) but differs by more wide aedeagus; absence of wide sclerotized spinule in middle part of gonocoxites; short cerci and hypoproct, unprominent above gonocoxites; gonostylus not longer than gonocoxites; less curved gonostylus; more wide base of genitalia; not swollen 3rd segment of palpi; strongly rounded wing apex; smaller body size. Abdominal tergites divided medially onto two stripes. Sternites with strongly sclerotized distal stripe.

DISTRIBUTION. Russia (Primorskii krai).



Figs 23-35. *Rhizomyia operculata* sp. n., male (23-30, 34, 35), female (31-33): 23, 29) gonostylus (variation of shape); 24) genitalia; 25) scape, pedicel, F1 and F2; 26) F9, 10; 27, 33) F5; 28) mouth parts; 30) palpi; 31) F8-F10; 32) pedicel, F1, F2; 34) wing; 35) tarsal claw. Scale line - 0.1 mm.

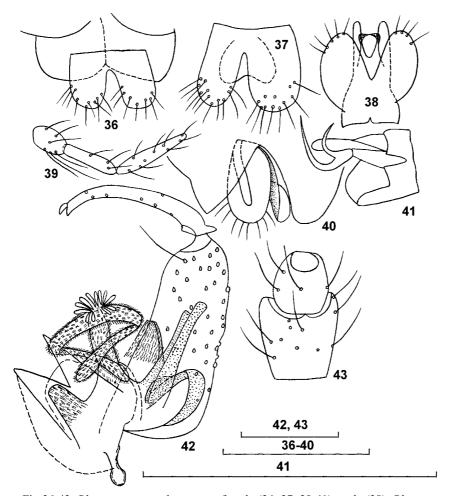


Fig 36-43. *Rhizomyia operculata* sp. n., female (36, 37, 39-41), male (38), *Rh. papposa* sp. n., male (42, 43): 36, 37, 40) ovipositor (variation of shape); 38) cerci, hypoproct and aedeagus; 39) palpi; 41) tarsal claw; 42, genitalia; 43, scape and pedicel. Scale line - 0.1 mm.

### Genus Acinacistyla Fedotova et Sidorenko, gen. n.

Type species – Acinacistyla papposa Fedotova et Sidorenko, sp. n.

DIAGNOSIS. Body, wing veins and antennae densely covered by scales, size 1.4-1.6 mm. Eyes almost completely covered head, not formed eye bridge. Antennae 2+11-segmented. Basal nodes of male flagellomeres enlarged, with dense swollen peritremae of setae, stem of mid flagellomeres longer than node or equal length. Node elongated, parallel-sided. Palpi 3-4-segmented. Tarsal claws dentated,

empodium as long as claw. Wing slightly rounded, maximally enlarged medially. Vein  $R_{1+2}$  joining C far before wing middle,  $R_{4+5}$  joining C not far before wing apex. Vein Cu forked. Pores on vein  $R_{1+2}$  and  $R_{4+5}$  present. Wing margin not interruipted behind joining C and  $R_{4+5}$  Gonocoxites almost parallel-sided or ovale, elonatged, roundly swollen basally. Gonostylus very long, thin and saber-toothed, strongly pointer apically, slightly shorter than gonocoxites. Cerci almost rounded or elongated, with rounded lobes and narrow or wide triangular excision. Hypoproct slightly sclerotized, with thin and long lobes, almost parallel-sided. Aedeagus triangular thin or thick triangular and narrowed before apex, slightly sclerotized. Basal outgrowths of gonocoxites in view of long setose protrusions and other glabrous protrusions different form.

RELATIONSHIPS. New genus resembles to *Rhizomyia* by forked vein Cu and joining vein  $R_{4+5}$  almost in apex of wing; presence long stem on flagellomere and swollen peritremae on basal node; not enlarged cerci, dentated claw, but differs by form of gonostylus, presence of basal outgrowths of gonocoxites and additional setose or glabrous protrusions; straight vein  $R_{4+5}$  (not curved to apex of wing).

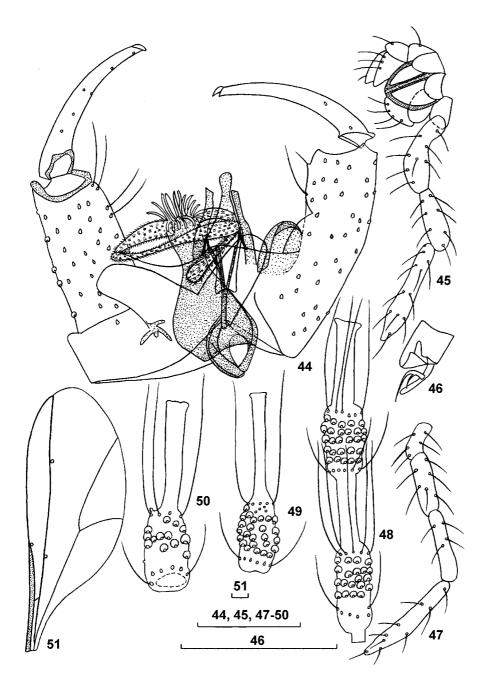
SPECIES INCLUDED. Genus includes *Acinacistyla papposa* sp. n. and *A. applanata* (Fedotova et Sidorenko, 2005), **comb. n.**, which was described as *Rhizomyia applanata* from Primorskii krai (Fedotova & Sidorenko, 2005).

# Acinacistyla papposa Fedotova et Sidorenko, sp. n. Figs 42-51

MATERIAL. Holotype − ♂ (slide 308/8082/1): Russia, Primorskii krai, Lazovskii Reserve, cordon Amerika, LT, 19-20.VII.2005 (V. Sidorenko) (ZISP). Paratype − ♂ (slide 308/8071/2): Koreiskaya pad', MT, river shore, 16-17.VII.2005 (V. Sidorenko) (IBSS).

DESCRIPTION. MALE. Body length 1.4-1.6 mm, wing length 1.8-2.0 mm, wing width 0.7-0.8 mm. Scape and pedicel light, flagellum strongly sclerotized. Stem of mid flagellomeres more longer than node. Scape 1.3 times longer than pedicel. F1 4.4 times as long as wide, basal node 1.4 times shoter than stem. F2 1.1 times shoter than F1, but wider. F5 4.0 times as long as wide, basal node 1.3 times shorter than stem. F11 3.9 times as long as wide, basal node 1.4 times shorter than stem. Palpi 4-segmented, its ratio 1:2.8:2.2:3.7 or 1:1.7:2.1:3.3, last segment pointed apically. Labrum triangular or oval. Tarsal claws dentated, empodium as long as claw. Wing maximally enlarged medially, length 2.2 times as long as wide.

Vein  $R_{1+2}$  joining C far before wing middle, 2.4 times shorter than wing;  $R_{4+5}$  almost straight, joining C distinctly before wing apex. Vein Cu forked. Gonocoxites with medio-basal sclerotized lobes, almost parallel-sided, 3.0-3.4 times as long as wide. Gonostylus almost straight, enlarged basally, 1.4 times shorter than gonocoxites, 4.6-4.9 times as long as wide. Cerci M-formed; with deep, triangular excision between triangular lobes, unsclerotized, 1.5 times wider than hypoproct. Hypoproct slightly sclerotised, with tuft or whorl of setae on the apex, with two very long lateral protrusions apically. Base of genitalia with wide sclerotized plate. Basal outgrowths of gonocoxites thin, slightly sclerotized, oblique inward. Aedeagus slightly sclerotized, conical, with basal swelling and rounded apically.



Figs 44-51. *Rhizomyia papposa* sp. n., male: 44) genitalia; 45) mouth parts; 46) tarsal claw; 47) palpi; 48) F1 and F2; 49) F5; 50) F11; 51) wing. Scale line - 0.1 mm.

FEMALE unknown.

RELATIONSHIPS. New species closely related to *A. applanata* (Fedotova et Sidorenko, 2005) but differs from it by long node of F1 (basal node as long as stem in *applanata*), presence of apical tuft of setae and lateral protrusions on less elongated hypoproct (hypoproct with two pointed lobe and excision in *applanata*), glabrous additional protrusions (not long-setose), less curved gonostylus and 4-segmented palpi with long articles (not 3-segmented, short palpi).

DISTRIBUTION. Russia (Primorskii krai).

#### Genus Stabiliola Fedotova et Sidorenko, gen. n.

Type species – Stabiliola serrata Fedotova et Sidorenko, sp. n.

DIAGNOSIS. Basal nodes of flagellomeres enlarged, with numerous swollen peritremae of setae, stem of mid flagellomeres longer than node. Eye bridge present. Palpi 4-segmented. Labrum small, triangular; paraglossae very large with rounded apex; fused glossae small, U-formed. Tarsal claws dentated, empodium shorter than claw. Wing strongly rounded, maximally enlarged distally. Vein  $R_{1+2}$  joining C far before wing middle.  $R_{4+5}$  almost straight, joining C distinctly near of wing apex. Vein Cu forked. Gonocoxites with medio-basal sclerotized denticle. Basal outgrowths of gonocoxites short, sclerotized and wide. Gonostylus arced, narrowed basally and apically. Cerci and hypoproct cordiform. Aedeagus triangular distally, wide and parallel-sided proximally, long and wide, strongly sclerotized on apex. Base of genitalia with wide sclerotized plate.

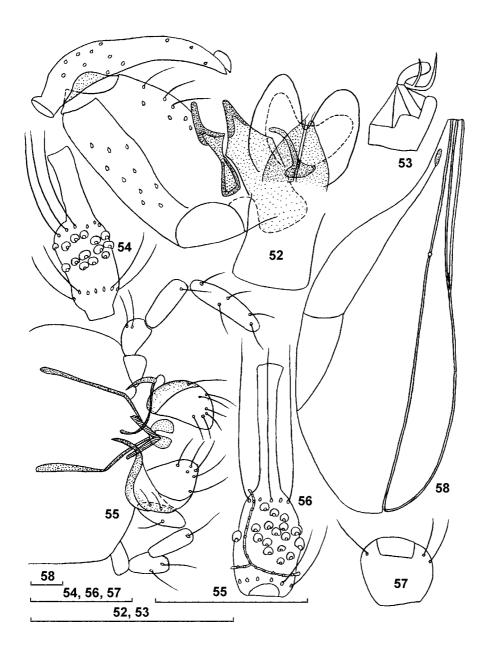
RELATIONSHIPS. New genus closelyrelated to *Rhizomyia* but differs by presence basal outgrowths of gonocoxites; elongated stem, larger than basal node of flagellomeres; cordiform, wide and short hypoproct (not parallel-sided and narrow); elongated and curved gonostylus and 4-segmented palpi with long articles (not 3-segmented, short palpi) and different shape of mouth parts (very small labrum, rounded paraglossae and small glossae).

SPECIES INCLUDED. A type species only.

# Stabiliola serrata Fedotova et Sidorenko, sp. n. Figs 52-58

MATERIAL. Holotype – ♂ (slide 340/8072/1): Russia, Primorskii krai, Lazovskii Reserve: Koreiskaya pad', MT, 17-18.VII.2005 (V. Sidorenko) (ZISP).

DESCRIPTION. MALE. Body length 1.25 mm, wing length 1.55 mm, wing width 0.5 mm. Eye bridge medially 5-7 facets broad. Scape almost rounded. F1 2.9 times as long as wide, basal node 1.6 times shorter than stem. F2 1.2 times longer than F1, but wider. F5 3.2 times as long as wide, basal node 1.2 times shorter than stem. Palpi 4-segmented, its ratio 1:1.2:1.9:2.7, last segment oval. Tarsal claws with long thin denticle near base, empodium slightly shorter than claw. Wing length 2.5 times



Figs 52-58. *Stabiliola serrata* sp. n., male: 52) genitalia; 53) tarsal claw; 54) F1; 55) mouth parts; 56) F5; 57) pedicel; 58) wing. Scale line - 0.1 mm.

as long as wide. Vein  $R_{1+2}$  2.4 times shorter than wing. Gonocoxites oval, 2.0 times as long as wide, with straight long medio-basal denticle at base of gonocoxites. Gonostylus 1.1 times shorter than gonocoxites, 5.1 times as long as wide. Cerci with narrow excision, unsclerotized, 1.2 times wider than hypoproct. Hypoproct with wide oval excision and two oval lobes. Aedeagus long and wide, marginally sclerotized apically.

FEMALE unknown.

DIAGNOSIS. New species closely related to *Rhyzomyia umbra* sp. n., in having of medio-basal denticle at the base of gonocoxites; longer stem of flagellomeres; triangular aedeagus in apical half (not thin parallel-sided); very long gonostylus and different form of wing.

DISTRIBUTION. Russia (Primorskii krai).

#### Genus Volsatiola Fedotova et Sidorenko, gen. n.

Type species – Volsatiola aegua Fedotova et Sidorenko, n. sp.

RELATIONSHIPS. New genus resembled to *Rhizomyia* by forked vein Cu and joining vein  $R_{4+5}$  almost in apex of wing; not enlarged cerci, dentated claw, but differs by short gonostylus, presence of swelling and short sclerotized basal outgrowths of gonocoxites; short cerci and hypoproct; straight and long aedeagus; straight vein  $R_{4+5}$  (not curved to apex of wing).

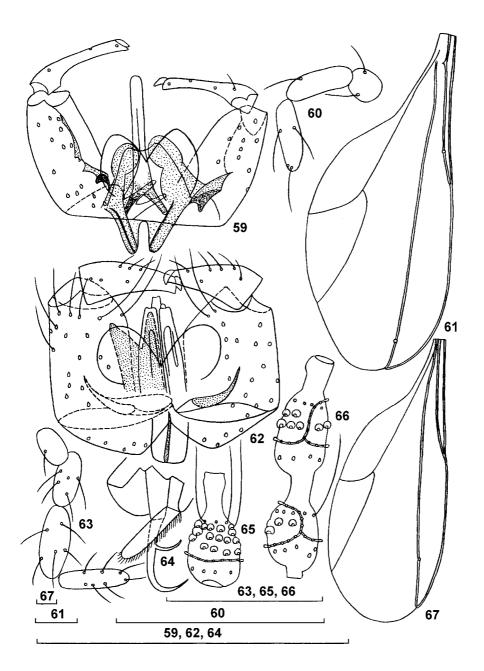
SPECIES INCLUDED. A type species only.

## Volsatiola aequa Fedotova et Sidorenko, sp. n.

Figs 59-61

MATERIAL. Holotype – ♂ (slide 322/8072/1): Russia, Primorskii krai, Lazovskii Reserve, Koreiskaya pad', MT, marge, 17-18.VII.2005 (V. Sidorenko) (ZISP).

DESCRIPTION. MALE. Body length 1.08 mm, wing length 1.13 mm, wing width 0.45 mm. Eye bridge medially 6-7 facets broad. Palpi 3-segmented, its ratio 1:2.0:2.1, 1st flagellomere rounded, last one parallel-sided. Wing strongly rounded



Figs 59-67. *Volsatiola aequa* sp. n., male (59-61), *Compositola competiva* sp. n., male (62-67): 59) genitalia; 60) palpi; 61) wing; 62) genitalia; 63) palpi; 64) tarsal claw; 65) F4; 66) F1 and F2; 67) wing. Scale line - 0.1 mm.

and enlarged medially, length 2.4 times as long as wide. Vein  $R_{1+2}$  joining C far before wing middle, 2.3 times shorter than wing;  $R_{4+5}$  joining C distinctly before of wing apex. Vein  $R_{4+5}$  with one pore near apex. Vein Cu forked behind level of joining C and  $R_{1+2}$ . Gonocoxites parallel-sided, 2.2 times as long as wide. Gonostylus almost straight, enlarged basally, 1.4 times shorter than gonocoxites, 4.3 times as long as wide. Cerci cordiform; with wide triangular emargination between oviform lobes, unsclerotized, 1.2 times wider than hypoproct. Hypoproct slightly sclerotised, with small apical excision, enlarged basally. Aedeagus very long, parallel-sided, narrow, slightly sclerotized, rounded apically. Basal outgrowths of genitalia very wide, sclerotized, with comissure near middle. Basal part of gonocoxites situated obliquely, with elongated oval excision between it.

FEMALE unknown.

RELATIONSHIPS. New species differs from other known species of Brachineurini by very long parallel-sided aedeagus, strongly swollen and sclerotized basal outgrowths of gonocoxites and base of genitalia, consisting of two protrusions, but rather closes to group of species with developed basal outgrowths of gonocoxites.

DISTRIBUTION. Russia (Primorskii krai).

#### Genus Compositola Fedotova et Sidorenko, gen. n.

Type species – Compositola competiva Fedotova et Sidorenko, sp. n.

DIAGNOSIS. Eye bridge developed. All male flagellomeres with stem, basal node covered by thin macrotrichia, with numerous swollen peritremae of setae. Middle flagellomeres more than 2.0 times as long as wide. Palpi 4-segmented. Tarsal claws with large denticle at the base, empodium shorter than claw. Wing strongly rounded apically. Vein  $R_{1+2}$  joining C far before wing middle,  $R_{4+5}$  almost straight, joining C distinctly before wing apex, with pore. Vein Cu narrow-forked. Gonocoxites without medio-basal lobes, parallel-sided laterally and swollen basally. Gonostylus straight, strongly enlarged basally. Cerci cordiform; transversal, unsclerotized. Hypoproct slightly sclerotised, parallel-sided, with deep triangular excision. Outgrowths of gonocoxites slightly shorter than aedeagus, with inner arched structures. Aedeagus thin, cylindrical.

RELATIONSHIPS. New genus resembled to *Rhizomyia* by forked vein Cu and not enlarged cerci; dentated claw but differs from it by joining vein  $R_{4+5}$  far before apex of wing; more short gonostylus, presence of swollen and sclerotized basal outgrowths of gonocoxites; short cerci; straight and long aedeagus and short flagellomeres.

SPECIES INCLUDED. A type species only.

# Compositola competiva Fedotova et Sidorenko, sp. n. Figs 62-67

MATERIAL. Holotype – ♂ (slide 323/8095/1): Russia, Primorskii krai, Lazovskii Reserve, cordon America, MT, marge, 18-19.VI.2005 (V. Sidorenko) (ZISP).

DESCRIPTION. MALE. Body length 1.3 mm, wing length 1.55 mm, wing width 0.63 mm. Eye bridge medially 5-6 facets broad. All segments with short stem. F1 2.0 times as long as wide, basal node 2.5 times longer than stem. F2 1.2 times longer than F1. F5 2.2 times as long as wide, stem 1.5 times shorter than basal node. Palpi 4-segmented, its ratio 1:1.4:1.3:1.7, last segment parallel-sided, rounded apically. Tarsal claws hook-form, with large curved denticle at the base, empodium shorter than claw. Wing maximally enlarged distally, length 2.4 times as long as wide. Vein  $R_{1+2}$  2.4 times shorter than wing;  $R_{4+5}$  with pore near wing apex. Gonocoxites swollen basally, 1.9 times as long as wide. Gonostylus straight, triangular, 1.6 times shorter than gonocoxites, 2.4 times as long as wide. Cerci cordiform; slightly sclerotized, with wide triangular excision between ovoid lobes, unsclerotized, 2.8 times wider than hypoproct. Hypoproct slightly sclerotised, parallel-sided, with two lateral long triangular protrusions, pointed apically and deep triangular excision. Outgrowths of gonocoxites slightly shorter than aedeagus, with short finger-like protrusions. Aedeagus as long as gonocoxites, thin, cylindrical, truncated apically and slightly sclerotized. Base of genitalia with narrow sclerotized plate and sclerotized stripes at base of cerci.

FEMALE unknown.

RELATIONSHIPS. New species more closes to *Rhizomyia propensa* sp. n., described above but differs by presence of basal outgrowths of gonocoxites; joining veins  $R_{4+5}$  and Cu far before wing apex; more short stem of flagellomeres; 4-segmented palpi and slightly sclerotized aedeagus.

DISTRIBUTION. Russia (Primorskii krai).

#### TRIBE STOMATOSEMATINI MAMAEV, 1968

DIAGNOSIS. Antenna with 12-13 flagellomeres. F1 and F2 fused with each other, F13 with long terminal nipple; female flagellomeres with 2 circumfila and 2 vertical connectives. Male flagellomeres with more long neck than in female ones, with basal circumfila and a vertical stripe. Vein C broken at junction with  $R_{4+5}$ ; Sc present;  $R_s$  as strong as other veins;  $R_{4+5}$  curved apically to join C behind wing apex;  $R_{m+m}$  in same direction as  $R_5$ ;  $M_{3+4}$  fold apparent; Cu forked. Tarsal claws with denticles, empodium different length. Cerci and hypoproct bilobed. Aedeagus bare, flask-shaped, narrowed apically. Apex slightly widened and bent dorsally. Gonocoxite large, with long setae, especially ventrally, with large basiomesal lobe, apically divided into various shape dorsal and ventral parts. Gonostylus thin, elongate. Female sternite VIII bare; area immediately in front of cerci sclerotized. Cerci 1-2-segmented, separate. Sternite IX setose, divided mesally.

GENERA INCLUDED. Tribe includes genera *Didactylomyia* Felt and *Stomatosema* Kieffer.

### Genus Stomatosema Kieffer, 1904

Stomatosema Kieffer, 1904: 380. [Type species – Stomatosema nemorum Kieffer, 1904]. Jeannellomyia Kieffer, 1913a: 40. [Type species – Jeannellomyia gracilipes Kieffer, 1913a: 41].

Baeomyza Kieffer, 1913b: 89. [Type species – Baeomyza monticola Kieffer, 1913b: 90]. Vanchidiplosis Nayar, 1949: 81. [Type species – Vanchidiplosis vanchi Nayar, 1949: 82]. Neohaplusia Rao, 1951: 114. [Type species – Neohaplusia neohaplusia Rao, 1951: 114 (= Vanchidiplosis vanchi Nayar)].

Haplusiella Rao, 1952: 49. [Type species – Haplusiella pectiniclava Rao, 1952: 49 (= Vanchidiplosis vanchi Nayar)].

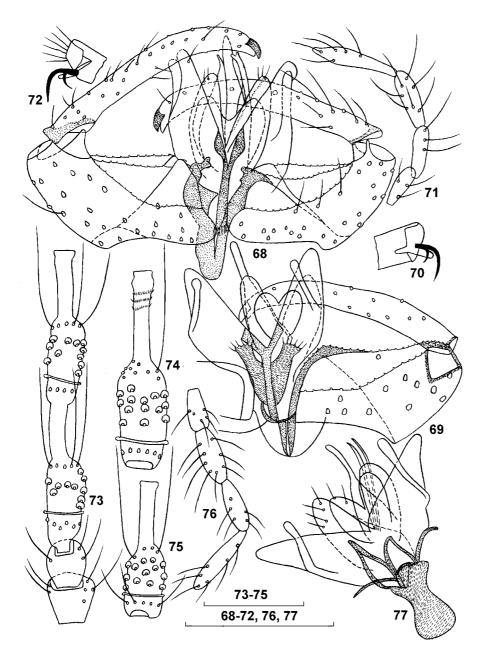
DIAGNOSIS. Eyes confluent. Palpi 4-segmented. Antenna ♂ and ♀ with 2+13 segments, less than half the length of the body, male flagellomeres elongate and oval with short or long stem, female flagellomeres with short stem, each with two whorls of setae, basal flagellomeres with short and stout setae, apical ones with long setae and 1-2 low circumfila with comissure. Scape subquadrate, pedicel globose. F13 with protrusion. Wing hyaline, length 2.5-2.6 times as long as width, vein  $R_{4+5}$ angulate with  $R_{1+2}$ , joining C much before the middle of wing.  $R_{4+5}$  slightly curved distally and joining C beyond the apex of wing, Cu forked. Tarsal claw denticle situated basally, almost twice longer than empodium. Gonocoxite almost cylindrical or very wide rounded laterally, 1.7-2.7 times as long as width. Gonostylus longer and slender than gonocoxites, 7-10 times as long as maximal middle thickening, evenly curved apically and ended by blunt tooth. IX tergite broad, as long as hypoproct, deeply and broadly incised, lobes broadly triangular or rounded. Hypoproct spinulose ventro-basally, narrower than IX sternite and with small, stout, straight and recurved setae, broadly incised medially or almost straight. Basal outgrowths of gonocoxites finger-like (S. kamalii (Grover), S. zaitzevi Fedotova and S. breviseta n. sp.), or whole (S. spinellosa Mamaev et Zaitzev, S. taiga Fedotova and S. madularis n. sp.), longer than aedeagus and gonocoxites, slightly widened or broad dorsally, with apical hairs. Aedeagus long, thin, cylindrical or cylindrical only apically, broad basally, longer than basal outgrowth, tapering. Ovipositor with one-segmented pair of terminal lamellae.

SPECIES INCLUDED. Currently the genus *Stomatosema* includes one Holarctic species (Gagné, 2004), two Nearctic species (Foot, 1965; Gagné, 1975, 1981, 2004), eight Palaearctic ones (Skuhravá, 1986; Mamaev & Zaitzev, 1997, Fedotova & Sidorenko, 2003), including 3 species described here, five Oriental species (Grover, 1964, Gagné, 1973, 2004), 3 Afrotropical species (Gagné, 2004) and one Neotropical species (Gagné, 1994). Larvae are xylophilous (Skuhravá, 1997).

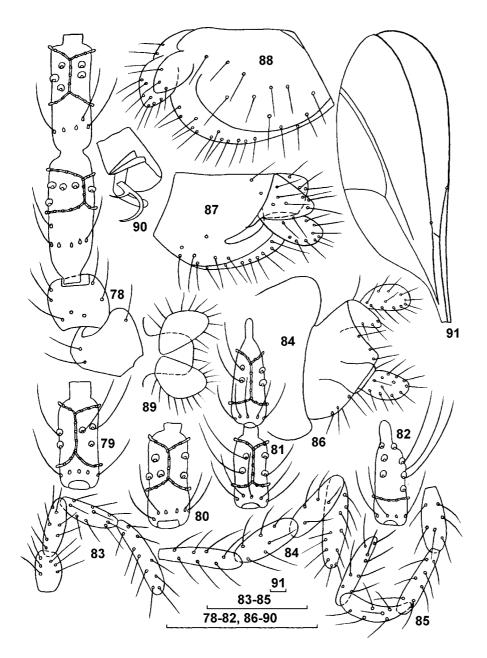
# Stomatosema medularis Fedotova et Sidorenko, sp. n. Figs 68-91, 113, 114

MATERIAL. Holotype –  $\sigma$  (slide 293/8074/1): Russia, Primorskii krai, Lazovskii Reserve, Proselochnaya bay, MT, 15-16.VI.2005 (V. Sidorenko) (ZISP). Paratypes – 1  $\sigma$  (slide 293/8086/2), cordon America, YT, 20-21.VII.2005 (V. Sidorenko); 1  $\sigma$  (slide 293/8107/3), Proselochnaya bay, LT, 15-16.VII.2005; 3  $\varphi$  (slide 293/8094/4-5): cordon America, LT, river shore, 18-19.VI 2005; 1  $\varphi$  (slide 293/8083/6): Koreiskaya pad', MT, stream shore, 17-18.VI.2005 (V. Sidorenko) (IBSS, SAA).

DESCRIPTION. MALE. Body length 1.4-1.5, wing length 2.0 mm, width 0.8 mm. Antennae 2+13-segmented. F1 as long as F2. F5 3.5-4.2 times as long as wide, node as long as neck, or 1.2 times longer than stem. Most of flagellomeres with 2-3 rows microtrichiae on the apex of stem. Palpi 4-segmented, its ratio 1:1.3:1.4:2.0 or 1:1.6:1.5:2, segment 4 narrowed apically, with rounded apex. Tarsal claw dentated,



Figs 68-77. *Stomatosema madularis* sp. n., male: 68, 69) genitalia (variation of shape); 70, 72) tarsal claw (variation of shape); 71, 76) palpi; 73) scape, pedicel, F1 and F2; 74, 75) F5 (different scale); 77) cerci, hypoproct, parameres and aedeagus. Scale line - 0.1 mm.



Figs 78-91. *Stomatosema madularis* sp. n., female: 78) scape, pedicel, F1 and F2; 79) F5; 80) F6, 81) F11, F12; 82) F13 (variation of shape); 83-85) palpi; 86-88) ovipositor; 89) apical and ventral plates of ovipositor; 90) tarsal claw; 91, wing. Scale line - 0.1 mm.

curved medially, empodium shorter than claw. Wings almost semicircular, 2.5 times as long as wide, with large anal cell. Vein  $R_{1+2}$  joining C not far before wing middle, 2.2 times shorter than length of wing,  $R_{4+5}$  joining C near wing apex. Gonocoxite strongly dilated basally, 1.5-1.6 times as long as wide. Gonostylus 1.2-1.3 times as long as gonocoxite, slightly narrowed and recurved apically, not swollen basally or slightly swollen, 7.3-7.7 or 5.7 times as long as wide. Cerci and hypoproct whole. Cerci cordiform; with deep, triangular excision between triangular lobes, unsclerotized, 1.8-2.4 or 3.0 times as wide as hypoproct, laterally with long and thin protrusion. Hypoproct unsclerotized, V-form or cordiform, with pointed or rounded apex, gradually narrowed basally. Genital base narrow, strongly sclerotized. Aedeagus wide, strongly enlarged basally and narrowed apically. Parameres slightly sclerotized, very long and thin, consist of two plates, bent basally and almost straight apically, or spiniform.

FEMALE. Body length 1.63-2.13 mm, wing length 2.25-2.40 mm, width 0.85-0.95 mm. Antennae 2+13-segmented, scape 1.1 times shorter than pedicel, F1 1.2 times as long as F2. F5 2.8 times as long as wide, basal node 5.3 times longer than stem. F6 2.4 times as long as wide, basal node 11 times as long as stem. F13 with long protrusion and rounded apically, 3.1-3.3 times as long as wide, 1.4 times longer than F12. Mouth parts very setose. Palpi 4-segmented, its ratio 1:1.5:1.6:2.2 or 1:1.6:1.6:2.0, segment 4 with enlarging apex. Tarsal claw widely rounded, with hook at the base, empodium longer than claw. Vein  $R_{1+2}$  joining C not far before wing middle, 2.1 times shorter than length of wing; one pore near vein  $R_s$  and other near apex  $R_{4+5}$  present. Abdomen with very large dark inner spot. Ovipositor consists of pair of one-segmented oviform apical plates, longest one 1.3-1.5 times as long as wide, covered by long setae. Ventral plate widely oval, length 1.8 times as long as wide.

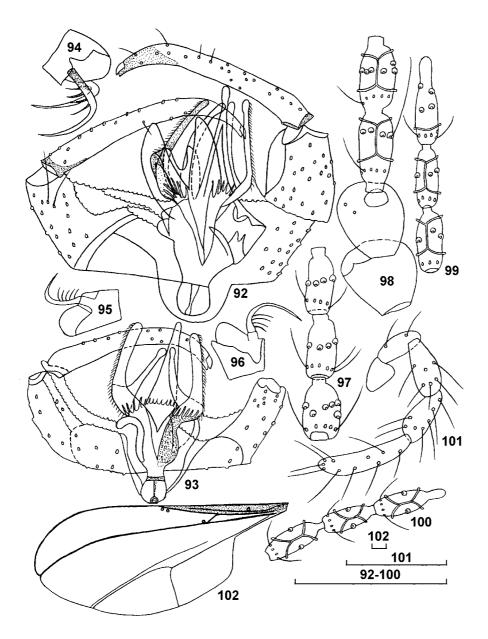
RELATIONSHIPS. New species closely related to *Stomatosema spinellosa* Mamaev et Zaitzev described from Italy (Mamaev & Zaitzev, 1997), but differs by very wide gonocoxites, not rounded basally; almost parallel-sided gonostylus; very small sclerotized plate on the apex of cerci (along lateral margin in *spinellosa*); more short stem of flagellomeres (longer than basal node in *spinellosa*), absence of apical hook on aedeagus.

DISTRIBUTION. Russia (Primorskii krai).

# Stomatosema breviseta Fedotova et Sidorenko, sp. n. Figs 92-102

MATERIAL. Holotype –  $\sigma$  (slide 292/8071/1): Russia, Primorskii krai, Lazovskii Resrve, Koreiskaya pad', MT, stream shore, 16-17.VII.2005 (V. Sidorenko) (ZISP). Paratype – 1  $\sigma$  (slide 292/8090/2): the same locality, 17-18.VII 2005 (V. Sidorenko) (IBSS).

DESCRIPTION. MALE. Body length 1.0-1.3 mm, wing length 1.6-1.8 mm, width 0.7-0.9 mm. Antennae 2+13-segmented, scape 1.2 times shorter than pedicel. F1 1.2 times as long as F2. F5 1.6 times as long as wide, basal node 6.5 times as long as stem. Flagellomeres without micritrichiae on the apex of stem. F13 3.3 times



Figs 92-102. *Stomatosema breviseta* sp. n., male: 92, 93) genitalia (variation of shape); 94-96) tarsal claw (variation of shape); 97) F5-F7; 98) scape, pedicel, F1 and F2; 99, 100) F11-F13 (variation of shape); 101) palpi; 102) wing. Scale line - 0.1 mm.

as long as wide, with long protrusion, 1.4 times as long as F12. Palpi 4-segmented, its ratio 1:1.2:1.3:2, segment 4 almost parallel-sided, palpiger developed. Tarsi with 4-5 seta-like denticles. Wings with rounded low margin, 2.4 times as long as wide. Vein  $R_{1+2}$  joining C not far before wing middle, 2.0 times shorter than wing length.  $R_{4+5}$  joining C far behind wing apex. Sc developed; cell between veins C and  $R_{1+2}$  slightly sclerotized.  $M_{3+4}$  and pCu present. Gonocoxite strongly dilated, 2.4-2.5 times as long as wide. Gonostylus 1.1 times as long as gonocoxite, almost parallel-sided, slightly recurved apically, 7.1-7.9 times as long as wide. Cerci V-formed; with deep, triangular emargination between oval lobes, unsclerotized, 2.1 times wider hypoproct. Hypoproct unsclerotized, slightly prolonged, with oval emargination. Parameres entire, very thin, U-formed, subapically slightly swollen, laterally covered by setae. Genital base narrow, strongly sclerotized, between gonocoxites with sclerotized plate, dented apically. Aedeagus triangular, strongly enlarged basally and pointed apically.

FEMALE unknown.

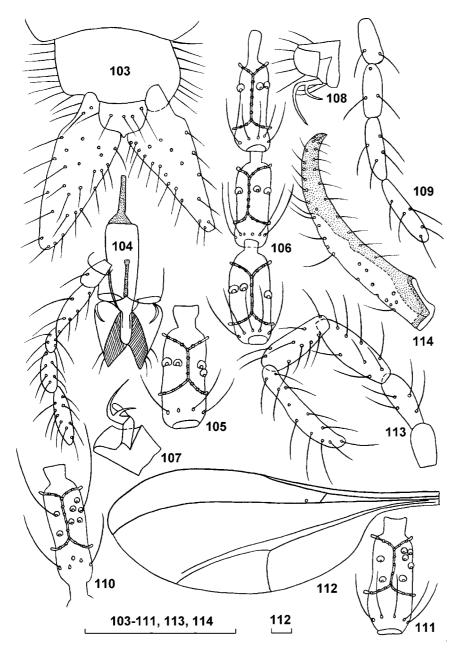
RELATIONSHIPS. New species closely related to *S. zaitzevi* Fedotova (Fedotova, Sidorenko, 2003) but differs from the latter by enlarged cerci and hypoproct; U-form parameres; short antennae with very short stems of flagellomeres; dentated and setosed tarsal claws;, more wide spot of sclerotization in middle part of gonocoxites with dentated margin; presence of large sclerotized cell between veins  $R_{1+2}$  and  $R_{4+5}$ ; developed Sc; finger-like protrusions on the apex of F13 and elongated 4th palpal segment. Apical plates ovipositor and setose tarsal claw of male resembled to S. *kamalii* (Grover) from India (Grover, 1964), but differs more long flagellomeres, especially apical, and its stems; swollen (not parallel-sided) palpal segments and more large and widely rounded tarsal claw. According short antennae with very short stems of flagellomeres new species closed to S. *brevicornis* (Mamaev, 1967) but differs absence of long hairs at the base of aedeagus.

DISTRIBUTION. Russia (Primorskii krai).

## Stomatosema cuneata Fedotova et Sidorenko, sp. n. Figs 103-112

MATERIAL. Holotype – ♀ (slide 291/8094/1): Russia, Primorskii krai, Lazovskii Reserve, cordon America, MT, river shore, 18-19.VI.2005 (V. Sidorenko) (ZISP).

DESCRIPTION. FEMALE. Body length 1.9 mm, wing length 2.5 mm, width 1.0 mm. Antennae 2+13-segmented. F2 3.6 times as long as wide, basal node 3,6 times shorter than stem. F3 and F4 slightly narrowed in basal 1/3. F5 2.9 times as long as wide, node 4.7 times shorter than stem. F13 with long protrusion and rounded apex, 4.8 times as long as wide, 1.3 times as long as F12. Mouth parts densely setose. Palpi 4-segmented, its ratio 1:2.1:1.3:1.9, segment 4 with conical apex. Tarsal claw widely rounded with strong hook near base, empodium as long as claw. Ovipositor consists of pair one-segmented triangular apical plates, length one of them 2.6 times as long as wide, covered by long setae. Ventral plate transversal, width 1.4 times as long as length.



Figs 103-114. *Stomatosema cuneata* sp. n., female (103-112), *S. madularis* sp. n., male (113, 114): 103) ovipositor; 104) mouth parts; 105) F5; 106) F11-F13; 107, 108) tarsal claw (variation of shape); 109) palpi; 110) F2; 111) F3; 112) wing; 113) palpi and palpiger; 114) gonostylus. Scale line - 0.1 mm.

MALE unknown.

RELATIONSHIPS. New species closely related to *S. obscura* (Mamaev) (Mamaev, 1967; Gagné, 1975) but differs by more wide apical plates of ovipositor; elongated female flagellomeres and small body size.

DISTRIBUTION. Russia (Primorskii krai).

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Address: Institute of Biology and Soil Science, Far East Branch of Russian Academy of

Sciences, 690022, Vladivostok-22, Russia.

E-mail: entomol@ibss.dvo.ru FAX: (4232) 310 193