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Some notes on the Old World *Allotrichoma* (Diptera: Ephydridae) with description of three new species

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ABSTRACT. The taxonomic position of the genus *Allotrichoma* BECKER and the construction of the male terminalia are discussed. The following new synonymies are proposed: *A. biroi* CRESSON = *A. ralloi* CANZONERI = *A. abiatense* CANZONERI, *A. laterale* (LOEW) = *A. sciens* CRESSON, and *A. trispinum* BECKER = *A. filiforme* BECKER. Three new species are described: *A. dyna* from China, *A. ozerovi* from Turkmenistan and Uzbekistan, and *A. stackelbergi* from Tadzhikistan. For all the mentioned species male terminalia are described and illustrated.

KEY WORDS: Diptera, Ephydridae, *Allotrichoma*, new species, new synonyms.

INTRODUCTION

The genus *Allotrichoma* was separated by BECKER (1896) from the genus *Hecamede* HALIDAY in its initial sense. *Hecamede lateralis* LOEW, 1860 was originally designated as the type species. The clear distinctive characters allow an easy recognition of the genus, especially males with elongated cerci armed with long setae. On the other hand minute-size species of *Allotrichoma* are similar to each other and difficult to determine, therefore they are rarely mentioned in faunistic lists. Suprisingly the genus is rich in species, occupying the eight position among the shore flies, after *Hydrellia* ROBINEAU-DESVOIDY, *Notiphila* FALLÉN, *Paralimna* LOEW, *Parydra* STENHAMMAR, *Psilopa* FALLÉN, *Scatella* ROBINEAU-DESVOIDY and *Scatophila* BECKER (see MATHIS & ZATWARNICKI 1995). The highest number of species known from the Palaearctic Region is resulted probably from an insufficient knowledge of tropical faunas, especially of Oriental and Australasian Regions. The aim of this paper is description of three new species and proposing new synonymies of Palaearctic and Paleotropical *Allotrichoma*.

Acknowledgments

We would like to express our sincere thanks to curators of the collections: Mr. D. Azuma (ANSP), Dr. Neal L. Evenhuis (BBM), Dr. S. A. Marshall (CUG), Dr. G. Bächli (GB), Dr. L. Papp and Dr. A. Dely-Draskovits (HNHM), Dr. M. Barták (MBP), Dr. J. T. Nowakowski (MIZW), Dr. P. Grootaert (MRHNB), Dr. M. v. Tschirnhaus (MTB), Dr. R. Contreras-Lichtenberg (NMW), Dr. H.-P. Tschorsnig (SNM), Dr. W. N. Mathis (USNM), Dr. H. Andersson and Dr. R. Danielsson (ZIL), Dr. E. P. Nartschuk (ZISP), Dr. H. Schumann (ZMHU), Dr. L. Lyneborg and Dr. V. Michelsen (ZMC), Dr. A. L. Ozerov (ZMUM) and Dr. W. Schacht (ZSM) for the loan of or access to the material relevant to this study. The work of the senior author was partly supported by the Russian Foundation for Fundamental Research, grant N 97-04-48098.

MATERIAL AND METHODS

The material has been borrowed from various institutions (in parentheses abbreviations are used in the text, an asterisk indicates collections from which type specimens were borrowed).

*ANSP - Academy of Natural Sciences of Philadelphia, USA.
BBM - Bernice P. Bishop Museum, Honolulu, Hawaii, USA.
CUG - Entomological Collection of the University of Guelph, Guelph, Canada.
GB - Private collection of Dr. G. Bächli, Zürich, Switzerland.
*HNHM - Hungarian Natural History Museum, Budapest, Hungary.
MBP - Private collection of Miroslav Bartak, Prague, Czech Republic.
MIZW - Museum and Institute of Zoology PAS, Warsaw, Poland.
MRHNB - Musee Royal d'Histoire Naturelle Belgique, Bruxelles, Belgium.
MTB - Private collection of Dr. M. v. Tschirnhaus, Bielefeld, Germany.
*NMW - Naturhistorisches Museum in Wien, Austria.
SMN - Staatliches Museum für Naturkunde, Stuttgart, Germany.
TZ - Private collection of Dr. T. Zatwarnicki, Wrocław, Poland.
USNM - National Museum of Natural History, Smithsonian Institution, Washington, USA.
*ZIL - Zoological Institute in Lund, Sweden.
ZISP - Zoological Institute St. Petersburg, Russia.
*ZMHU - Zoologisches Museum der Humboldt Universität, Berlin, Germany.
ZMC - Zoological Museum Copenhagen, Denmark.
ZMUM - Zoological Museum of Moscow University, Moscow, Russia.
ZSM - Zoologische Staatssammlung München, München, Germany.

In descriptions we apply the standard terminology for external characters. We use three head ratios (head ratio: width of head to height of head, eye ratio: height of eye to

width of eye, and eye-to-gena ratio: eye height to gena height) and two wing ratios (costal vein ratio and M vein ratio). We emphasise, that in various papers of MATHIS (sometimes with co-authors) published till 1995 the eye-to-gena ratio (as eye-to-cheek ratio) was defined as the genal height to eye height, opposite to our definition. For the male terminalia we adopt the terminology of ZATWARNICKI (1996), therefore we use the term phallapodeme, instead of aedeagal apodeme.

RESULTS AND DISCUSSION

Systematic position of the genus *Allotrichoma*

Earlier authors placed the genus *Allotrichoma* in the subfamily Notiphilinae. In Cresson's system the genus was included in the tribe Atissini. MATHIS (1991) erected the tribe Hecamedini for the genera closely related to *Hecamede* (*Hecamede* HALIDAY, *Diphuia* CRESSON, *Elephantinosoma* BECKER, *Eremotrichoma* GIORDANI SOIKA, and *Allotrichoma* BECKER, including *Pseudohecamede* HENDEL). In the system of shore flies proposed by ZATWARNICKI (1992) the tribe Hecamedini was closely related to Lipochaetini, but Atissini s. str. was situated in Hydrelliinae. The tribe Hecamedini shares some similarities also with members of Gymnomyzini. The phylogenetic position of the genus was first analysed by MATHIS (1991). In the hypotethical phylogeny of the tribe Hecamedini he suggested that the sister group of *Allotrichoma* s. str. was *Pseudohecamede* (treated as a subgenus of *Allotrichoma* s. l.), but *Eremotrichoma* was located in an other assemblage, as sister group of *Hecamede*. In our opinion the relationships were based on a weak evidence, especially the colour of palpi and legs, while the genital characters, suggesting a different arrangement, were neglected. A modified male abdomen (synapomorphies 44 and 45 of MATHIS 1991) are characteristic not only of *Allotrichoma*, but also of *Eremotrichoma*. The presence of abdominal sclerite, which is the fifth tergite, unique among shore flies, is a strong synapomorphy, shared by *Allotrichoma* s. str. and *Eremotrichoma*. *Pseudohecamede* could be the sister group to both the mentioned taxa. All the three taxa share the lobate dististyli (reduced in *Allotrichoma*) and the gonite bearing three setae.

A suggestion of MATHIS (1991) that the complicated shape of cercus is a synapomorphy for *Allotrichoma* does not apply to all species, since in some representatives of the genus the cercus is of typical oval shape. An advantage of MATHIS' (1991) analysis is the recognition of "the atrilabre group" of *Allotrichoma*. This group, including not only already known Nearctic species (*A. atrilabre* CRESSON, *A. yosemite* CRESSON), but also distributed in the Neotropics (junior author examined an undescribed species from Peru), is not homogeneous with the rest of *Allotrichoma*, but shares some characters with *Pseudohecamede*. To esablish the formal status of the group we need to know better the polarity of characters within *Allotrichoma* and its relatives.

In our opinion following apomorphic characters, support the monophyly of *Allotrichoma*.

(1) Gonostylus (fused to epandrium, therefore called surstylus in the text) forming a simple appendix, terminating with apical seta, or reduced.
(2) Gonites incised apically.
(3) Cerci generally elongated, in some tropical species fused to each other, rarely oval.
(4) Fifth tergite forming ventral sclerite.
(5) Fourth male tergite vestigial, forming two small bands close to the anterior margin of fifth tergite.

Nomenclature and diagnosis of the genus *Allotrichoma*

Allotrichoma BECKER, 1896: 121. Type species: *Hecamede lateralis* LOEW, 1860, original designation.

Epiphasis BECKER, 1907: 301. Type species: *Epiphasis clypeata* BECKER, 1907, monotypy - COGAN 1984: 131 (synonymy).

Small to moderately small shore flies, length 1.3 to 2.2 mm; frons unicolorous; face shallowly carinate, slightly tuberculate; palpus black; mesonotum generally dark brown; pleural sclerites lighter (generally grey); mesonotum covered by rows of short setae; prescutellar acrostichal and intraalar presutural seta distinct; second notopleural setae higher than the first one; membrane of wing milky white. Legs: tibiae generally dark, concolorous with femora.

Very characteristic for the males of *Allotrichoma* and *Eremotrichoma* (but not for *Pseudohecamede*) is the elongated fourth tergite and modified fifth tergite of abdomen, forming flat, pocket-like sclerite, which bears in the middle of postero-ventral margin two or three projections armed with setae.

The structure of the male terminalia of *Allotrichoma* is modified as compared to other members of the tribe Hecamedini. Cerci are elongated, often twice as long as epandrium. The normal shape of cerci as oval lobe occurs very rarely. Each lobe of epandrium bears anteriorly a process; we interpret it as a gonostylus fused with epandrium. Because of the fusion we call the process surstylus, and we think that the gonostyli (genital lobes) in the ancestor of *Allotrichoma* were fused with epandrium and the separation of genital lobes (surstyli) from epandrium in some species is secondary. It is still unclear if the separation of epandrium and surstyli is apomorphic, and if the species with separated surstyli form a monophyletic lineage; examination of male terminalia in the remaining species is need to solve the problem.

The gonites are ventrally fused with postero-dorsal margins of hypandrium. The gonite is L-shaped in lateral view, with its larger lobe situated anteriorly, with generally 2 anterodorsal setae; also ventral margin of gonite bears a seta medially. The phallapodeme is Y-shaped in lateral view, posteromedial branch in dorsal view bifurcated; phallapodeme is antero-dorsally attached to the base of aedeagus; probably the phallapodeme could be even fused with aedeagus, at least in some species.

Aedeagus is cigar-like, in lateral view slightly arcuate or straight, basally narrowing.

1. *Allotrichoma bezzii* BECKER

Allotrichoma Bezzii BECKER, 1896: 123.
Allotrichoma lena DAHL, 1973: 354; ZATWARNICKI 1991: 298 (synonymy).
Allotrichoma pedemontanum CANZONERI & MENEGHINI, 1979: 629; ZATWARNICKI 1991: 298 (synonymy).
Allotrichoma pubescentulus ELBERG, 1963: 347, **nomen nudum**.

Description

Small species, length 1.3-1.5 mm.

Head: black with brownish microtomentum; frons, including orbital plates, black, with brown microtomentum; antenna black, pedicel black, scope with silvery microtomentum, first flagellomere black; arista with 5 rays; eye almost round; face with brownish, and gena with grey microtomentum; clypeus dark brown; palpus black; head ratio 1.35; eye ratio 1.1; eye-to-gena ratio 5.0.

Thorax: mesonotum and scutellum black with brownish microtomentum; halteres yellow. Wing whitish; costal vein ratio 3.0; M vein ratio 2.0. Legs: black, fore and mid tarsi yellowish with darkened last 1-2 segments, hind tarsi dark.

Abdomen: width to length ratio 0.9. Fifth tergite laterally with thin appendage, bearing about 5 hairs on the apex. Male terminalia as follows: epandrium band-like with 4 bristles; surstyli secondarily separated, basally connected with antero-lateral margin of epandrium by a membrane; cerci elongated, thin, apically broadened and apically rounded, along the dorsal margin with a row of setae, apical part with several long, sometimes twisted setae turned upward and inside; gonites branching apically, the ventral part longer, lobe-like and rounded, dorsal part gradually tapered, with apical spinula; phallapodeme Y-shaped with ventral branch longer than the dorsal; eadeagus long, in dorsal view with basal margin rounded (Figs. 1-4).

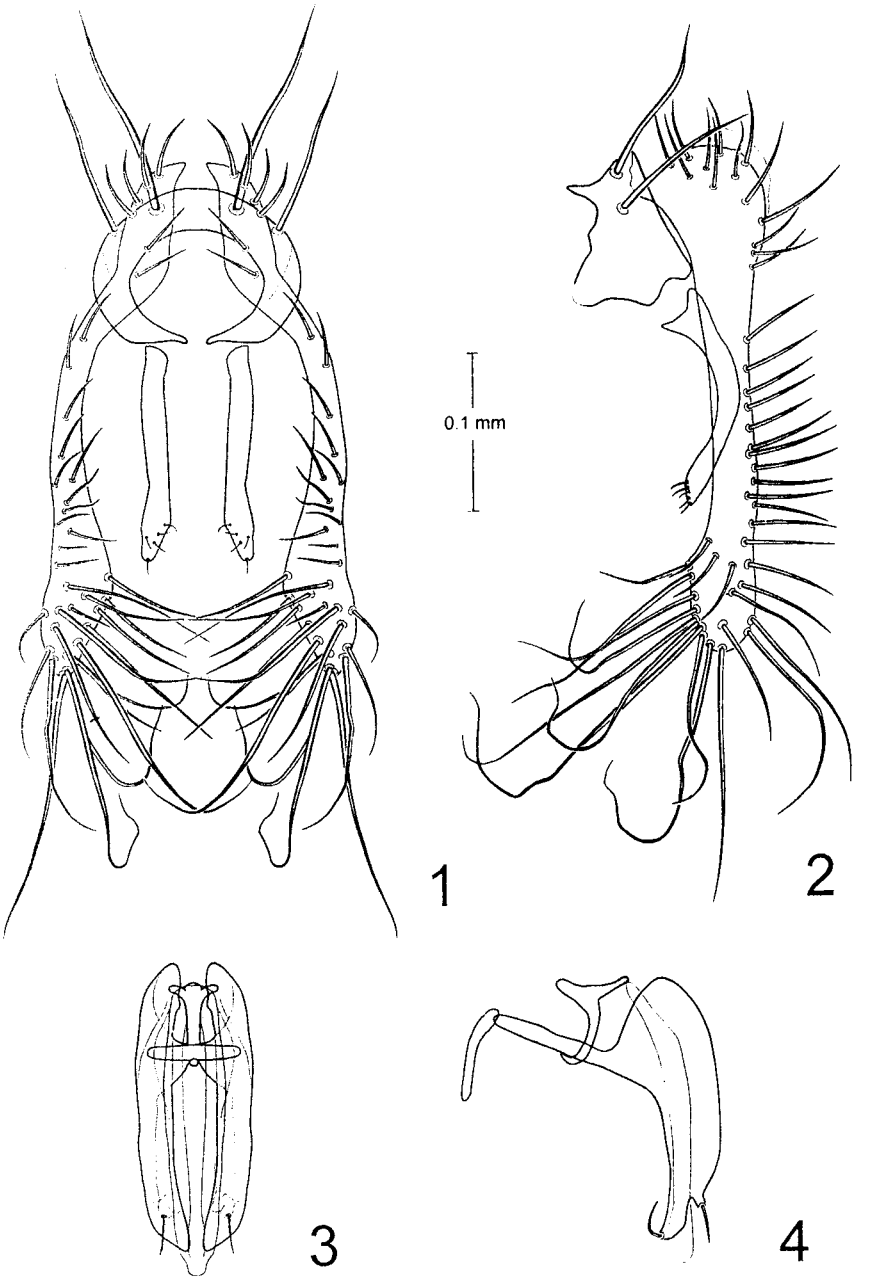
Material examined

Type material: Lectotype male of senior synonym, labelled: "Edefors 1/7 43265, *Allotrichoma bezzii* BECK. ♂ det. Papp. L.", designated by Zatwarnicki (1991) preserved in ZMHU.

Other material examined: Austria: Hammern, 7 VIII 1873, Mik, 9 ♂; Kremsmünster, 4 IV 1932, Czerny, 1 ♂ (NMW). Bulgaria: Varna, 20 IX 1929, leg. Szilady, 1 ♂ (HNHM). Lithuania: Nida, 3 VII-7 VIII 1940, O. Duda, 6 ♂, 2 ♀. Germany: Sinsen Westf., 5 VIII 1918, O. Duda, 1 ♂ (ZMHU). Poland: Słupsk, 21-22 III 1931, 2 ♂, 16 IV 1930, 1 ♂, O. Karl (MIZW). Russia: Leningradskaya obl.: Yascera, Luga, 28 IV 1961, 8 VII 1967, A. A. Stackelberg, 2 ♂; Tolmatschevo, vic. Luga, 22 VIII 1936, A. A. Stackelberg, 1 ♂; Sablino, 24 IV 1934, A. A. Stackelberg, 1 ♂ (ZISP); Primorskij Kraj: 40 km SE Ussurijsk, 12 IX 1983, 3 VII 1985, A. Ozerov, 2 ♂ (ZMUM); Siberia, Novosibirsk Region, Cherny Mis, lakeshore-swamp, 22-29. VI. 1991, S. A. Marshall, 2 ♂ (CUG). Sweden: Sk. norr Krankesjön, sjöstrand, sand, 3 VIII 1974, H. Andersson, 1 ♂ (ZIL).

Distribution

Afghanistan, Austria, Bulgaria, Croatia, France, Germany, Hungary, Italy, Lithuania, Poland, Russia, Slovenia, Spain, Sweden, Yugoslavia.



Figs. 1-4. Male terminalia of *Allotrichoma bezzii* BECKER: 1 - epandrium and cerci, posterior view; 2 - same, lateral view; 3 - internal structures, posterior view; 4 - same, lateral view.

Remarks: The name *pubescentulus* published by ELBERG (1963, 1971) was based on a preliminary determination by A. Giordani Soika, who however did not describe the species, therefore the name *Allotrichoma pubescentulus* provided by Elberg without any description is a nomen nudum. We have examined the specimens from Sablino labelled by A. Giordani Soika as the holotype and allotype of *Allotrichoma pubescentulus*, and they are conspecific with *A. bezzi*, already known and widely distributed in Europe. Specimens of *A. bezzi* were often misdetermined as *A. laterale* (LOEW) (see remarks under the latter species), but it can be distinguished from its congeneres, especially from the latter species, by the colouration of the tarsi and the structure of male terminalia: the band-like, elongated cercus and curved apical setae.

5. *Allotrichoma biroi* CRESSON

Allotrichoma biroi CRESSON, 1929: 174.
Allotrichoma ralloi CANZONERI, 1987: 87, **syn. n**
Allotrichoma abiatense CANZONERI, 1988: 3, **syn. n**.

Description

Small shore fly, length 1.2-1.3 mm.

Head: face and frons golden-grey, orbital plates and gena grey; antennae black with grey microtomentum, arista with 4 rays, clypeus black, palpus black; eye round; head ratio 1.2; eye ratio 1.4; eye-to-gena ratio 3.7.

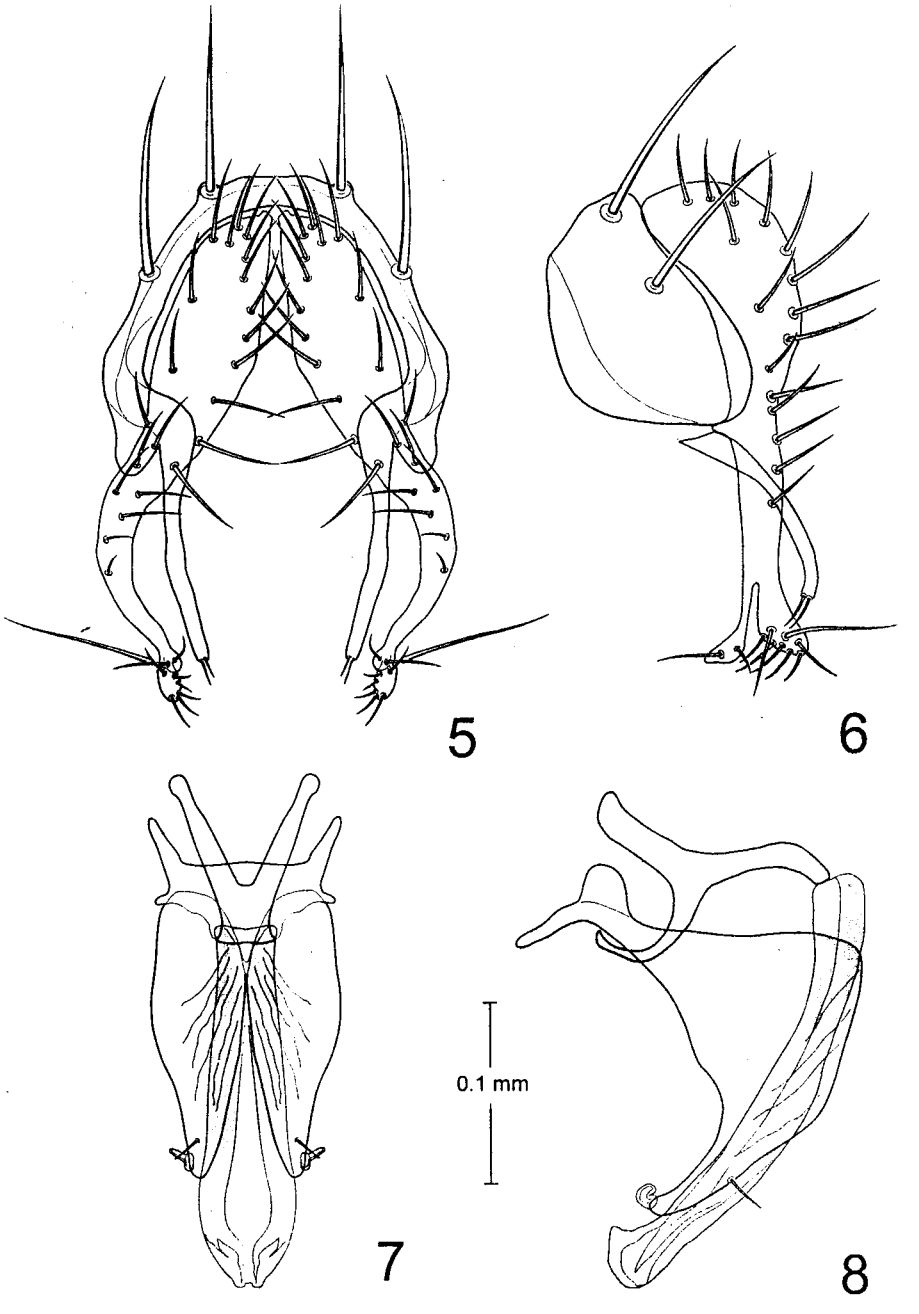
Thorax: mesonotum and scutellum golden-grey, mesopleura golden-grey, lateral surface grey, halteres yellow. Wing hyaline; costal vein ratio 3.0; M vein ratio 2.3. Legs: femora black with grey microtomentum, tibia yellow with grey medial bands, tarsi yellow except of darkened apical tarsomeres.

Abdomen brownish-grey. Male terminalia: epandrium band-like with 4 setae, surstyli secondary separated from epandrium, long and narrow with 2 setae apically; cerci elongated, apically bifurcated, one lobe broad with a group of eight setae, one of them long; second lobe narrow with two setae; gonites broad, dorsally wrinkled, apical seta thickened; phallapodema Y-shaped, all branches in similar length; aedeagus long, apically broaded (Figs. 5-8).

Material examined

Type material: Holotype male of senior synonym in good condition (genitalia in plastic vial) labelled: "Allotrichoma biroi, "Bombay Biro 1902," and "VII. 18" on reverse, "Holo-TYPE Allotrichoma BIORI [sic] E. T. Cresson Jr." (crimson), "typus" (white, with red margin) preserved in HNHM. Paratype male of *A. abiatense* in good condition (genitalia in plastic vial), labelled: "N. Africa, Ethiopia Lake Abiata, 83 mi S Addis Ababa 1. IV. 62.", "Lund University Expedition 1962 Brinck-Andersson-Cederholm", "PARATYPUS Allotrichoma abiatense nov. det. Canzoneri S." (red), "Type no. 2429: 8" preserved in ZIL.

Other material examined: Egypt: Assiut, orchard, 24. III. 1996, M. Barták, 1 ♂; Cairo, El-Marg, orange orchard, 22. III. 1996, M. Barták, 1 ♂, 1 ♀; Cairo, Golo Island, along Nile river, 21. III. 1996, M. Barták, 2 ♂, 2 ♀ (MBP); Ismailiya, 12. V. 1964, G. Steyskal, 2 ♂ (USNM). Hong Kong: N. T. Sheung Shui Distr., in cultivated areas, 18. VI. 1964, W. J. Voss, 2 ♂, 2 ♀ (BBM). India: Calcutta, Zoo, 15. IV.



Figs. 5-8. Male terminalia of *Allotrichoma biroi* CRESSON: 6 - epandrium and cerci, posterior view; 7 - same, lateral view; 8 - internal structures, posterior view; 9 - same, lateral view.

1980, A. Freidberg, 1 ♂ (USNM). Laos: Vientiane, 22. V. 1965, P. D. Ashlock, 1 ♂ (BBM). Oman: Miscat, 10. IV. 1985, P. Ardö, 4 ♂; Al Charbi 650 m, 10. IV. 1985, P. Ardö, 1 ♂, 3 ♀; Barka beach, 8. IV. 1985, P. Ardö, 1 ♂; Al kabura, 10. IV. 1985, P. Ardö, 1 ♂; Tanuf wadi, 620 m, 12. IV. 1985, P. Ardö, 1 ♂ (ZIL). Philippines: Mountain Prov., Abatan, Bugűias, 60 km S of Bontoc, 1800-2000 m., 24.-25. V. 1964, H. M. Torrevillas, 1 ♂ (BBM).

Distribution

Egypt, Ethiopia, Hong Kong, India, Laos, Oman, Philippines, and Sudan.

Remarks

The examination of the male terminalia of the type specimen of *Allotrichoma biroi* showed that the bifurcated apical portion of cerci was the same as `that illustrated for *Allotrichoma ralloi* by CANZONERI (1987). The bifurcation is not distinct in posterior view and was not presented it the figure of the male terminalia of *A. abiatense* by CANZONERI (1988). His figure of cercus does not differ substantially from our illustration, except the direction of large lateroapical seta. The examination of the male terminalia of paratype by junior author confirmed the presence of cercal bifurcation and the identity of *A. abiatense* CANZONERI and *A. biroi* CRESSON. The species, known since its description only from the type locality, is much more widely distributed as than was formerly believed, and is probably common in tropical or subtropical regions of the Old World. *A. biroi* differs from its congeners in moderately produced facial carina and cercus bilobed apically.

10. *Allotrichoma dyna* KRIVOSHEINA et ZATWARNICKI sp. n.

Description

Small species, length 1.4 mm.

Head: face silvery-grey with brown shining tubercle in the middle; gena silvery-grey; frons brown, ocellar triangle paler; antenna black, arista with 4 rays; clypeus black, palpus dark. Head ratio 1.9; eye ratio 1.6; eye-to-gena ratio 4.2.

Thorax: mesonotum brown with 3 dark brown stripes and silvery notopleural stripes; scutellum brown; halteres whitish-yellow. Wings hyaline; costal vein ratio 1.3; M vein ratio 2.7. Legs: femora black, with grey microtomentum; tibiae brownish-yellow, tarsi yellow, apical tarsomeres darkened.

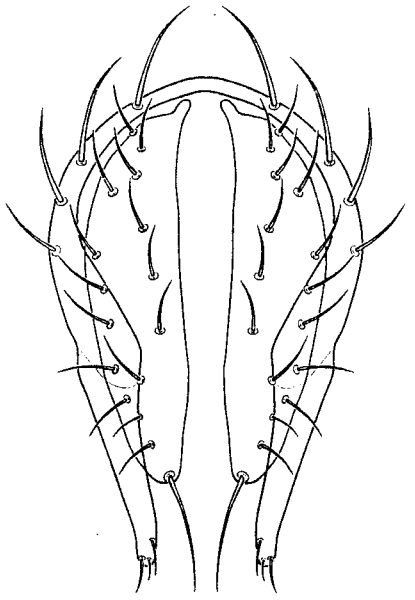
Abdomen brown. Fifth tergite with finger-like appendage, carrying about 10 setae. Male terminalia as follows: epandrium band-like with 6 strong setae; surstyli fused to epandrium, thin with 3 setae; cerci in dorsal view not elongated; in ventral view broadened in the middle, narrowing basally and apically; gonite with 2 setae; phallapodeme rod-like; aedeagus moderately broad with apical opening (Figs. 9-12).

Material examined

Type material: Holotype male labelled: "Dinhushan, Guandong, China, B. B. Rohdendorf, 27.XI.1959" preserved in ZMUM.

Distribution

China.



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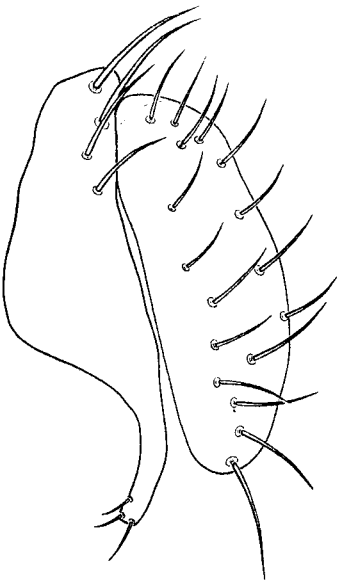

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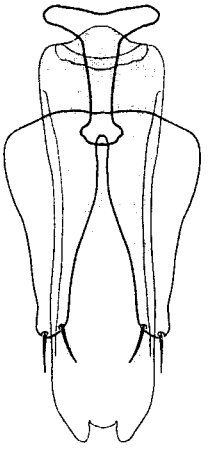
0.1 mm



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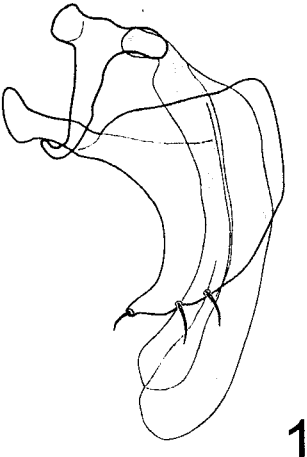

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Figs. 9-12. Male terminalia of *Allotrichoma dyna* KRIVOSHEINA et ZATWARNICKI sp. n.: 11 - epandrium and cerci, posterior view; 12 - same, lateral view; 13 - internal structures, posterior view; 14 - same, lateral view.

Remarks: The male terminalia of the species are very characteristic: the cercus is rounded, its length does not exceed the top of surstylus, and the gonite is simply trapezoidal, not bifurcated apically. The structure of the male terminalia suggests that it is the most primitive species of *Allotrichoma* we have examined. We expect the relatives of the species to be discovered in the Oriental Region, and they could possibly form a species-group within *Allotrichoma* (s. str.).

15. *Allotrichoma filiforme* BECKER

Allotrichoma filiforme BECKER, 1896: 123.
Allotrichoma trispinum BECKER, 1896: 124, **syn. n.**
Allotrichoma dahli BESHOVSKI, 1966b: 937; PAPP 1979: 98 (synonymy).

Description

Small shore fly, length 1.3-1.4 mm.

Head: black with brown and grey microtomentum; frons dark brown, antennae black, scope black, pedicel with greyish microtomentum, first flagellomere with greyish-brown microtomentum; arista with 5 rays; eye round; face from light brown to grey with darker knob, gena silvery-grey; clypeus dark brown, palpus black; head ratio 1.3; eye ratio 1.27; eye-to-gena ratio 4.2.

Thorax: mesonotum and scutellum black with brownish microtomentum; halteres yellow. Wing whitish; costal vein ratio: 3.0, M vein ratio: 1.9. Legs black, fore and middle tarsi yellowish with 1-2 last segments darkened; hind tarsi varying in coloration, sometimes completely dark.

Abdomen: width to length ratio 0.8. Fifth tergite laterally with bush-like appendage, bearing a group of setae. Male terminalia as follows: epandrium band-like, with 4 bristles; surstyli strongly narrowed to the apex, with 4 hairs on the top, gonites apically bifurcated, each lobe rounded, with a spinula; phallapodeme Y-shaped, aedeagus cigar-like (Figs. 13-16).

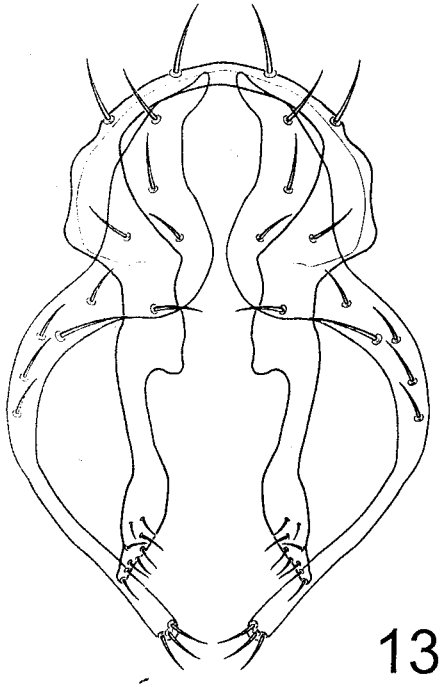
Material examined

Type material: Lectotype male of senior synonym labelled: "Sarepta Christoph.", "4. 14" (green), "lateralis ?", "Coll. H. Loew", "14391", "Allotrichoma filiformis Becker", "Type" (orange), "Lectotypus" (red), and lectotype male of junior synonym, labelled: "trispina Beck, Oderwald 18/8 39244", "Lectotypus" (red) both preserved in ZMHU.

Other material examined: Armenia: Jerevan, r. Berdadzor, 23 VIII 1962, V. Richter, 1 ♂ (ZISP). Czech Republic: Kamenin, salty meadow, 25. IV. 1986, M. Barták, 1 ♂. Italy: Ferrara, along river, 7. VIII. 1988, M. Barták, 1 ♂; Lago di S. Croce, deciduous wood near lake, 1. VIII. 1988, M. Barták, 1 ♂. Romania: Stoenesti, pasture nr. river, 14. VII. 1987, M. Barták, 3 ♂ (MBP). Russia: Siberia, Novosibirsk Region, Cherny Mis, 20-30. VI. 1991, S. A. Marshall, 7 ♂ (CUG). Turkmenistan: Kara-kala, 11. VI. 1952, Tobias, 1 ♂; Kokshetau, Tersakkan, Celinograd, 14. VII. 1957, Nartshuk, 1 ♂. Tadzhikistan: Kul'ab, 6 VIII 1933, V. Popov, 1 ♂ (ZISP, ZMUM). Uzbekistan: Chinaz, along Syrdarya, 20. V. 1989, M. Barták, 4 ♂; Zeravshan res., deciduous wood, 21.-22. V. 1989, M. Barták, 1 ♂ (MBP).

Distribution

Austria, Bulgaria, China (N. E. Tibet), Czech Republic, France, Hungary, Israel, Italy, Morocco, Poland, Spain, Russia, Yugoslavia.



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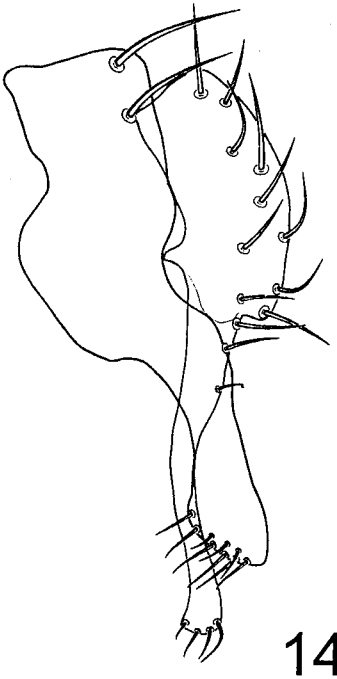

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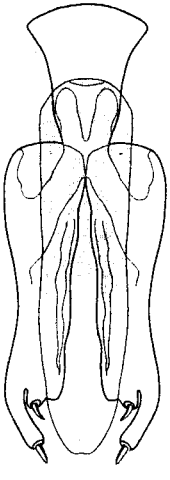
0.1 mm



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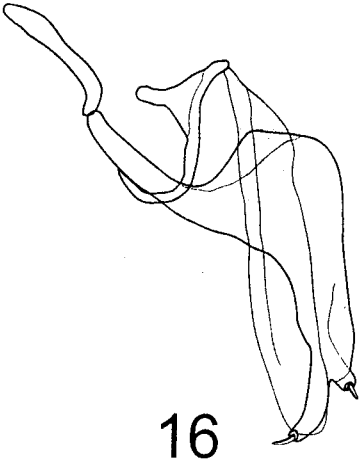

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Figs. 13-16. Male terminalia of *Allotrichoma filiforme* BECKER: 16 - epandrium and cerci, posterior view; 17 - same, lateral view; 18 - internal structures, posterior view; 19 - same, lateral view.

Remarks

Two names (*filiforme* and *trispinum*) were proposed by BECKER (1896) in the same monograph. The former species was described from "Sarepta", at present Wolgograd-Krasnoarmejsk (Russia), the latter from "Oderwald", at present a forest close to the Odra river near Malczyce (Silesia, Poland). PAPP (1979) treated *A. trispinum* and *A. filiforme* as valid species. Our precise examination of the male terminalia of both type specimens suggest that they are identical in many details of surstylus, gonites and aedeagus, even in the shape of the fifth tergite appendix, therefore we propose to synonymize both names. We have also examined the lectotype of *A. strandi* DUDA, in which the structure of the male terminalia is very similar to *A. filiforme*, however we have found slight, but consistent differences in some genital characters. Further studies are needed to confirm the status of *A. strandi*. *A. trispinum* differs from its congeners in the elongated shape of cercus.

20. *Allotrichoma laterale* (LOEW)

Hecamede lateralis LOEW, 1860: 13.
Allotrichoma laterale: BECKER, 1896: 121 (combination).
Allotrichoma oceanum BECKER, 1926: 20; PAPP 1979: 99 (synonymy).
Allotrichoma sciens CRESSON, 1929: 175, **syn. n.**
Allotrichoma impudicum DUDA, 1942: 9; PAPP 1979: 98 (synonymy).
Allotrichoma valkanovi BESHOVSKI, 1966a: 851; PAPP 1979: 99 (synonymy).

Description

Small to moderately small species, length 1.7-2.1 mm.

Head: black with brownish-grey microtomentum; frons black, orbital plates and ocellar triangle with brownish microtomentum; antennae black, first flagellomere black, second silvery, third with brownish microtomentum; arista with 6 rays; eye oval; face black with brownish microtomentum; gena with grey microtomentum; clypeus black; palpus black; head ratio 1.25; eye ratio 1.3; eye-to-gena ratio 4.5.

Thorax: mesonotum and scutellum black with brownish microtomentum; halteres yellow. Wing whitish: costal vein ratio: 3.0, M vein ratio 1.8. Legs: black, tarsi yellow except of 1-2 apical tarsomeres darkened.

Abdomen: width to length ratio 0.8. Fifth tergite laterally with thin appendage, bearing about 5 hairs. Male terminalia as follows: epandrium band-like with 6 strong bristles; surstyli fused to epandrium, elongated with four apical setae; cerci broad with several irregular rows of setae on dorsal surface; gonites dorsally wrinkled, apically bifurcated, each lobe with a spinula; phallapodeme Y-shaped with triangular posterior branch; aedeagus cigar-like, in posterior view apically incised (Figs. 17-20).

Material examined

Type material: Lectotype male of senior synonym labelled: "82 Coll. H. Loew", "Lectotypus", "Zool. Mus. Berlin" and paralectotype (sex unknown) labelled "183, Coll. H. Loew", "Paralectotypus", "Zool. Mus. Berlin" preserved in ZMHU; holotype male (without tip of abdomen) of *Allotrichoma sciens* labelled: "Ins. Usedom Ahlbeck, 14-22. VIII. '23 Zerny", "1244", "TYPE No. 6336 *Allotrichoma sciens* E. T. Cresson, Jr." (red), "ANSP" housed in ANSP.

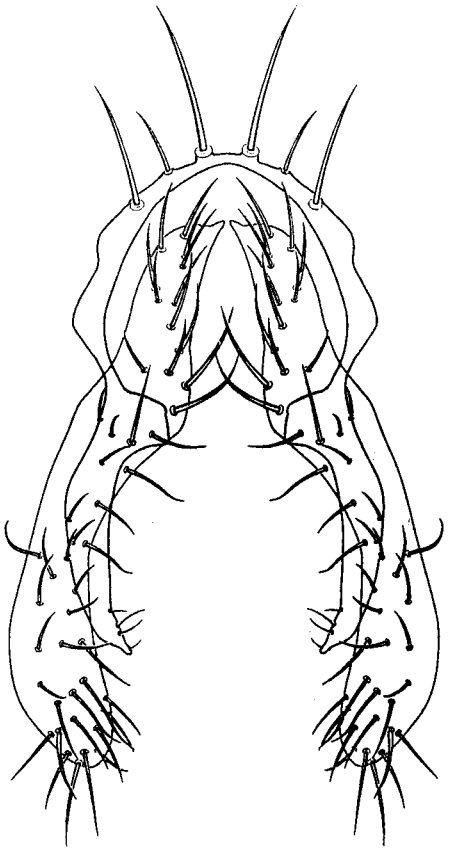
Other material examined: Afghanistan: Prov. Kabul, Kabul Aliabad, 1800-1920 m., 4. V.-13. VI. 1974, L. Papp, 4 ♂; Prov. Kabul, Pul-e Charkhi, 22 km ENE from Kabul, 1780 m., 2 VI 1974, L. Papp, 2 ♂ (HNMH). Austria: Kremsmünster, 1-7. IV. 1932, Czerny, 3 ♂ (NMW). Bulgaria: Kiten, salty meadow, 17. VII. 1987, M. Barták, 1 ♂; Slivec, 13 km N, damp valley, 21. VII. 1987, M, Barták, 1 ♂ (MBP). Canary Islands: Gran Canaria, II-VI. 1957, A. M. Hemmingsen, 1 ♂ (ZMC); Tenerife, Almaciga, 5. X. 1980, M. Baez, 1 ♂ (TZ); Tenerife, Bca. S. Andres, 9. XI. 1975, M. Baez, 1 ♂ (USNM). Cyprus: Akrotiri Bay, 4 X 1955, G. Mavromousrakis, 3 ♂ (MRHNB). Czech Republic: Libčice/Vlt. - 1 km NE, deciduous forest, 200 m., 25 IV 1984, M. Barták, 1 ♂ (MBP). Egypt: Alexandria, 31 III-2 IV 1978, G. Bächli, 19 ♂; Assiut, 18 III 1979, G. Bächli, 1 ♂ (GB). France: Orange, Vaucluse, 3. X. 1960, N. L. H. Krauss, 2 ♂, 2 ♀ (USNM). Germany: München vic., Dachau, 6. X. 1951, H. Freude, 1 ♂ (ZSM). Greece: Creta, Malia, 1 km S. I fruktodling, 15. V. 1979, R. Danielsson, 1 ♂; Creta, Samaria-dalen, 14 X 1985, L. Cederholm, 2 ♂ (ZIL); Creta, sand beach SE of Georgioupoli, 18 km WNW Rethimno, 12. V. 1988, M. v. Tschirnhaus, 1 ♂, 3 ♀ (MTB); Evoia, 3-5 km s. Eretria, 10-16. IX. 1976, leg. R. Danielsson, 1 ♂ (ZIL); Peloponisos, 5 km S Monemvasia, 12 IX 1983, G. Christiansen, 1 ♂ (ZMC); Rhodes, Maritsa, Kalamon, 16 V 1983, R. Danielsson, 1 ♂ (ZIL). Iran: Khuzestan, W. Boneh Sayyed Mossa, 16 km W Dezful, 31. X. 1971, L. V. Knutson, 1 ♂ (USNM). Israel: Rehoboth bei Jaffa, 1. IX.-26. XI. 1931-5, J. Ahareni, 21 ♂, 13 ♀ (SMN). Italy: Castiglione D'Orca, along river, 6. VIII. 1988, M. Barták, 1 ♂; Ferrara, along river, 7. VIII. 1988, M. Barták, 3 ♂ (MBP); Susa, 14. VIII. 1905, Kertész, 1 ♂ (HNHM). Jordan: Chona Novie, 4. IV. 1985, P. Ardo, 1 ♂; Swaima Dead Sea shore, 4. IV. 1985, P. Ardo, 1 ♂ (ZIL). Poland: Czernina, 10. VI. 1983, T. Zatwarnicki, 15 ♂, 9 ♀ (TZ). Spain: Mallorca, Alendia bahia, 28. V-9. VI. 1956, M. Becquaert, 1 ♂ (MRHNB); Elche, 10. V. 1907, Czerny, 1 ♂; S. Pablo, 19. IV. 1907, Czerny, 1 ♂ (NMW). Tadzhikistan: Dushanbe, botanical garden, 27. V. 1943, A. A. Stackelberg, 1 ♂; Dushanbe, 3. IV. 1945, A. A. Stackelberg, 1 ♂; 10. V. 1945, Gussakovsky, 1 ♂; Chorog, r. Gunt, Shungnan, 28. IX. 1943, A. A. Stackelberg, 1 ♂; Kondara, v. Varzob, 18. IX. 1938, Gussakovsky, 1 ♂; near Kul'ab, 6. VIII. 1933, V. Popov, 1 ♂ (ZISP). Turkey: Eskitshehir, VII. 1906, Lendl, 1 ♂ (HNMH). Turkmenistan: Chuli, garden, over ditch, 15. V. 1985, N. Krivosheina, 1 ♂; 40 km W Ashchabad, 20. IV. 1984, A. L. Ozerov, 1 ♂; Kushka, 15. V. 1991, A. L. Ozerov, 3 ♂ (ZMUM). Uzbekistan: Chim Gand, 2000 m., 90 km NE Tashkent, 16. VIII. 1968, C. Sabrosky, 4 ♂ (USNM); Chinaz, along Syrdarya, 20. V. 1989, M. Barták, 2 ♂ (MBP); Fergona, 18. IX. 1977, F. Floren, 4 ♂ (ZIL); Namangan, ex Heliotropium europeum, 30 VII. 1959, Oman, 1 ♂; Tashkent, 10-12 VIII 1968, C. Sabrosky, 1 ♂ (USNM); Zeravshan res., deciduous wood, 21-22. V. 1989, M. Barták, 3 ♂ (MBP).

Distribution

Algeria, Afghanistan, Austria, Belgium, Bulgaria, Canary Islands, Cyprus, Czech Republic, Egypt, Finland, France, Germany, Greece, Hungary, Iran, Israel, Italy, Jordan, Malta, Morocco, Poland, Russia, Spain, Sweden; Switzerland, Tadzhikistan, Turkey, Turkmenistan, Uzbekistan, Yugoslavia.

Remarks

This is the most common species occurring in Europe, but it was mistaken for other species. The type specimen of *A. sciens* examined by the junior author in 1985 was without male terminalia (probably eaten by *Anthrenus* larva). From the description of CRESSON (1929) it follows that the cerci of the species are spoonlike, but the cerci of *A. laterale* are elongated. The junior author examined the specimens of *A. bezzi* in NMW, which had been earlier examined by Cresson and determined as *A. laterale*. It turned out that CRESSON (1929) has misinterpreted both species, and described specimen of *A. laterale* as his new species *A. sciens*. *A. laterale* differs from its congeners by the ovally elongated cerci.



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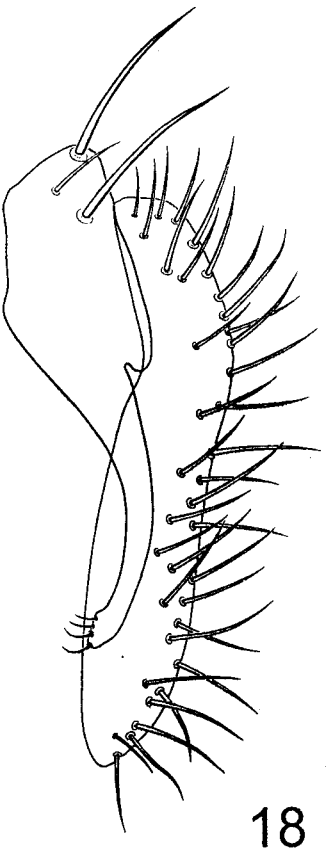

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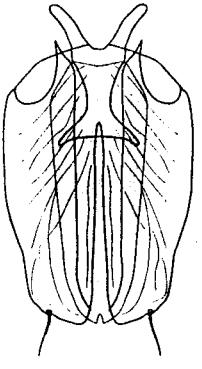

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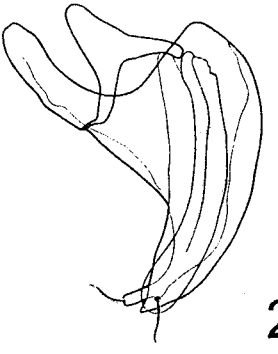

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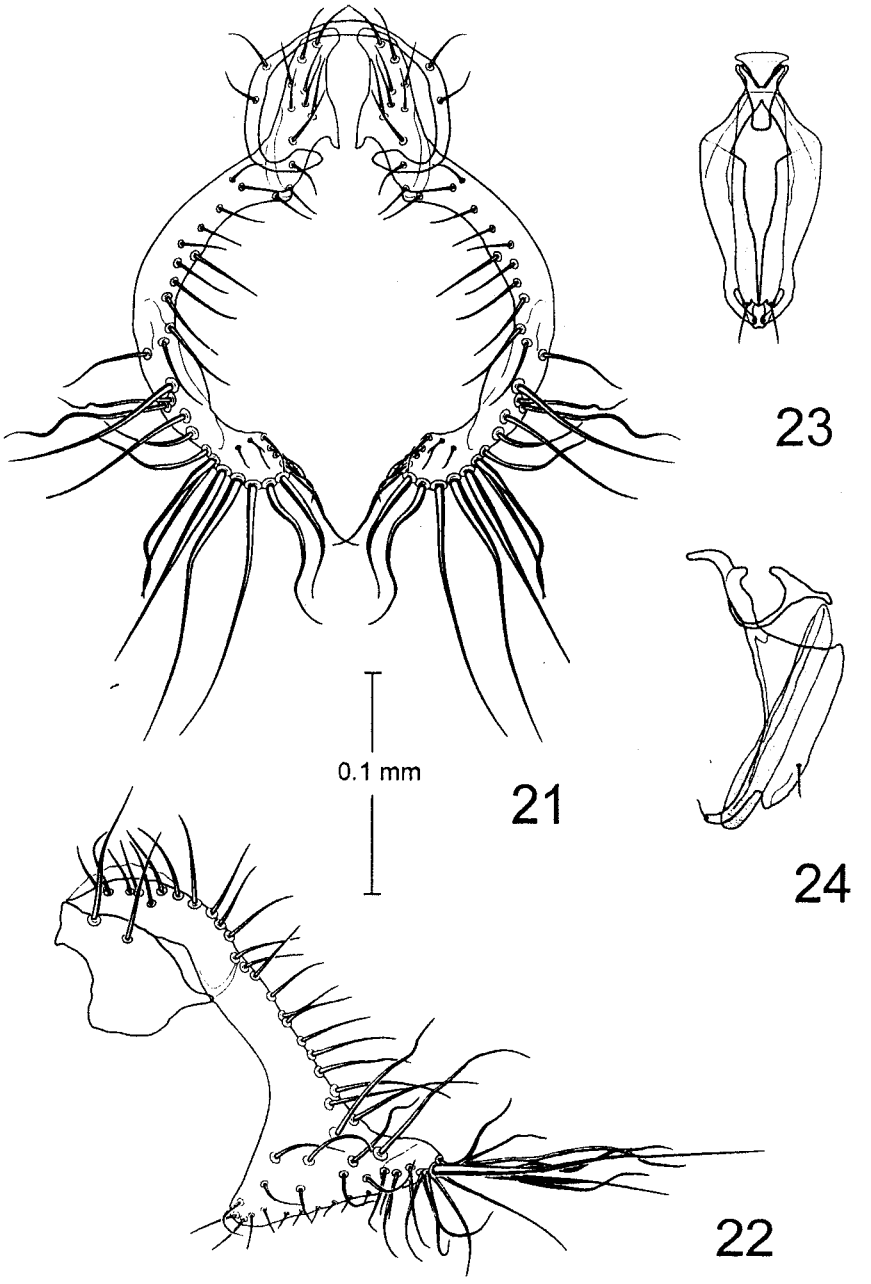
Figs. 17-20. Male terminalia of *Allotrichoma laterale* (LOEW): 21 - epandrium and cerci, posterior view; 22 - same, lateral view; 23 - internal structures, posterior view; 24 - same, lateral view.



Figs. 21-24. Male terminalia of *Allotrichoma ozerovi* KRIVOSHEINA et ZATWARNICKI sp. n.: 25 - epandrium and cerci, posterior view; 26 - same, lateral view; 27 - internal structures, posterior view; 28 - same, lateral view.

29. *Allotrichoma ozerovi* KRIVOSHEINA et ZATWARNICKI sp. n.

Description

Small to moderately small shore fly, length 1.8-2.0 mm.

Head: black, covered with brownish-grey microtomentum; frons and ocellar triangle brownish-grey; antenna black with silvery microtomentum; first flagellomere black; arista with 5 rays; eye round; face brownish-grey; clypeus concolorous with the face; palpus black; head ratio 1.8; eye ratio 1.2; eye-to-gena ratio 4.2.

Thorax: mesonotum brownish; thorax becoming silvery-grey ventrolaterally; scutellum brownish-grey; halteres yellowish-white. Wing whitish; costal vein ratio 2.9; M vein ratio 2.4. Legs: femora and tibiae silvery-grey, tarsi from light to dark brown, mid tarsi paler.

Abdomen: brownish-grey, generally brownish dorsally; width to length ratio 0.7. Fifth tergite with claw-like appendix armed with about 8 setae. Male terminalia as follows: epandrium band-like with 4 long setae, surstyli not developed; cerci in dorsal view elongate and curved, approximately equal in width along the whole length, slightly broadened to the apex with a row of setae, apical part with about 10 very strong and thick setae, ventral part weakly sclerotized, pale, light brown, lacking strong setae or bristles; gonites bifurcate, one lobe rounded, the second thin with apical spinula; phallapodeme Y-shaped; aedeagus in lateral view broad, in dorsal view cigar-like (Figs 21-24).

Material examined

Type material: Holotype male, labelled: "Turkmenien, Repetek, 8-9. V. 1990 A. L. Ozerov" preserved in Zoological Museum of Moscow University and 11 paratypes: 5 males bear the same label and 4 males from the same locality, but collected 20-25. IV. 1990, 1 male "Turkmenien, Sarykamysh, 140 km W Tashauz", "20. IV. 1990 A. L. Ozerov", 1 male "Turkmenien, Kushka, 15. 05. 1990 A. L. Ozerov", 1 male "Turkmenien, Chardzou, 25. IV. 1990 A. L. Ozerov", preserved in ZMUM (except one male from Repetek in TZ), and 2 paratype males labelled: "SU: Chinaz along Syrdarya 40.53N/68.43E Barták, 20. V. 1989", each preserved in collection of T. Zatwarnicki (TZ) and M. Barták (MBP).

Etymology

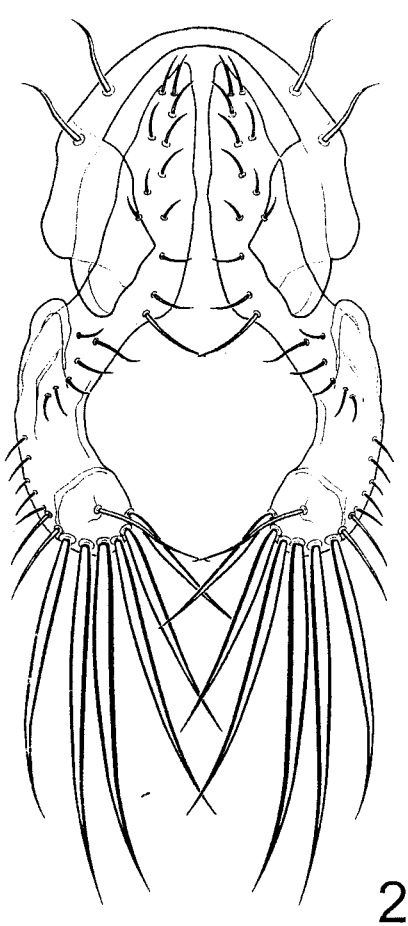
The species is named in honour of Dr. A. L. Ozerov, who collected most of the type specimens.

Distribution

Turkmenistan, Uzbekistan.

Remarks

The reduction of surstylus and the thickened cercal apical setae suggest that the species, together with *A. stackelbergi*, could be treated as a most modified representative of *Allotrichoma* (s. str.). *A. ozerovi* differs from its congeners in the triangular shape of apical portion of cercus and the long, thickened setae on cercal apical margin.



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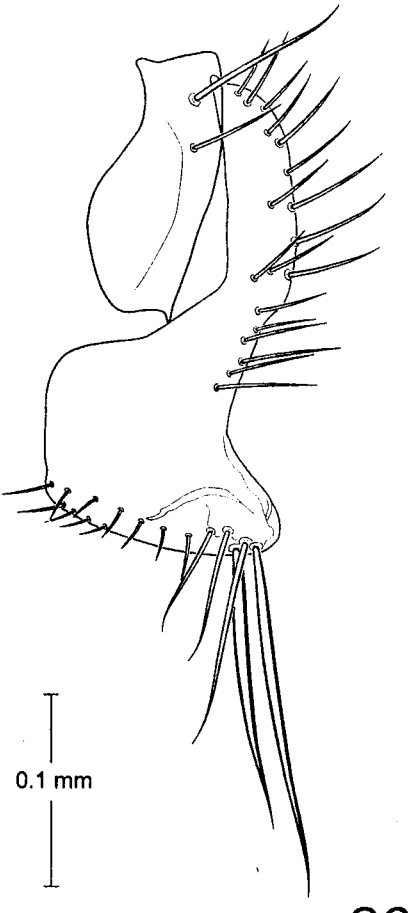

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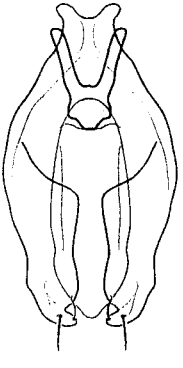

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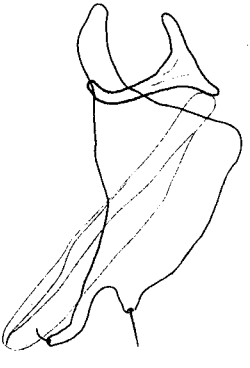

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Figs. 25-28. Male terminalia of *Allotrichoma stackelbergi* KRIVOSHEINA et ZATWARNICKI sp. n.: 30 - epandrium and cerci, posterior view; 31 - same, lateral view; 32 - internal structures, posterior view; 33 - same, lateral view.

34. *Allotrichoma stackelbergi* KRIVOSHEINA et ZATWARNICKI sp. n.

Description

Moderately small species, length 1.9-2.0 mm.

Head black covered by brownish-grey microtomentum; frons brownish-grey with narrow and indistinct light grey orbital band; antenna black; first flagellomere black, with silvery microtomentum; arista with 6 rays; face and gena silvery-grey; clypeus black; palpus dark-brown, blackish; head ratio 1.3; eye ratio 1.3; eye-to-gena ratio 4.0.

Thorax: mesonotum brownish-grey, thorax becoming silvery-grey ventrolaterally; scutellum brownish-grey; halteres whitish-yellow with dark yellow stem. Wing whitish; costal vein ratio 2.9; M vein ratio 2.6. Legs: femora and tibiae dark grey except brownish-yellow dorsoventral spots, fore and hind tarsi brown, mid tarsi light brown, apical tarsomere dark brown.

Abdomen: tergites covered by brownish-grey microtomentum, width to length ratio 0.8. Fifth tergite with two appendages, one broad and one thin, bearing strong setae on the apex. Male terminalia as follows: epandrium band-like with 4 strong setae, surstyli not developed; cerci in dorsal view broad, slightly curved, with 6 long and thickened setae on the apex and a row of setae at base, in lateral view cerci strongly broadened, having almost square form with 3 visible strong setae on dorsal part and about 6 short and 12 setae inserted on lateral margin; gonites branching apically, one lobe rounded, the other curved, both with apical spinula; phallapodeme T-shaped with long ventral branch apically curved posteriorly; aedeagus in lateral view broad, in dorsal view cigar-like (Figs 25-28).

Material examined

Type material: Holotype male, labelled: "Der'e Kul, left lower Vachs, bank of lake, 13. III. 1944, Stackelberg" preserved in ZISP.

Etymology: The species is named in honour of an outstanding Russian dipterologist A.A. Stackelberg.

Distribution: Tadzhikistan.

Remarks: Like in the preceding species, the reduced surstylus and thickened cercal apical setae provide evidence that *A. stackelbergi* is a highly modified representative of *Allotrichoma* (s. str.). It differs from its congeners in the coloration of legs, the irregularly rectangular shape of apical portion of cercus and the long, thickened setae on cercal apical margin.

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