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RESEARCH PAPER

Species of the genera *Acompomintho* and *Tricogena* (Diptera: Calliphoridae: Rhinophorinae), and their phylogenetic position based on molecular and morphological data

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Abstract. *Acompomintho carmanica* Ziegler sp. nov. from Iran and *Acompomintho gavryushini* Ziegler sp. nov. from Kazakhstan are described, illustrated and compared with the other known species of the genus. The male of *Acompomintho sinensis* (Villeneuve, 1936) is described and illustrated for the first time, and *Acompomintho lobata* Villeneuve, 1927 is re-described. The following new combinations are proposed: *Tricogena caucasica* (Villeneuve, 1908) comb. nov. [transferred from *Acompomintho*] and *Tricogena grandiloba* (Kugler, 1978) comb. nov. [transferred from *Oplisa*]. *Tricogena caucasica* and *Tricogena rubricosa* (Meigen, 1824) are re-described and illustrated. Keys to the species of *Acompomintho* and *Tricogena* are provided, and the delimitation of these genera is redefined. Additions to the key to the world genera of Rhinophorinae of Cerretti et al. (2020) are given, which allows identification of the redefined genera *Acompomintho* and *Tricogena*. The following new country records are also listed: *Oplisa oldenbergi* Herting, 1961 and *Tricogena caucasica* (Villeneuve, 1908) from Armenia, *Oplisa nudiseta* Zeegers, 2011, *Paykullia nubilipennis* (Loew, 1847), and *Tromodesia vibripennis* Rondani, 1862, from Greece, *Acompomintho sinensis* (Villeneuve, 1936), *Stevenia fausti* (Portschinsky, 1875), and *Tricogena caucasica* (Villeneuve, 1908) from Iran, and *Tromodesia setiventris* (Rohdendorf, 1935) from Kyrgyzstan. The phylogenetic relationships within the subfamily Rhinophorinae have been reconstructed. The results are based on BI and RAxML analyses. The Rhinophorinae appear with strong support as a monophyletic group, as do the two tribes Phytonini and Rhinophorini. All non-monotypic genera examined with more than one species included *Acompomintho* Villeneuve, 1927, *Phyto* Robineau-Desvoidy, 1830, *Tromodesia* Rondani, 1856, *Paykullia* Robineau-Desvoidy, 1830, *Oplisa* Rondani, 1862, *Tricogena* Rondani, 1856, and *Stevenia* Robineau-Desvoidy, 1830, proved to be monophyletic with strong support. The genera in question, *Acompomintho* and *Tricogena*, together with the genera *Azaisia* Villeneuve, 1939, *Oplisa*, *Rhinomorinia* Brauer & Bergenstamm, 1889, and *Stevenia*, come out in the Rhinophorini branch and are genetically and morphologically a very well-founded monophylum. The genus *Acompomintho* is probably a sister group of *Stevenia*, and the sister group of these two is *Tricogena*.

Key words. Diptera, Calliphoridae, Rhinophorinae, *Acompomintho*, *Oplisa*, *Stevenia*, *Tricogena*, identification key, new combination, new species, phylogeny, redescription, systematics, Palaearctic Region

Zoobank: http://zoobank.org/urn:lsid:zoobank.org:pub:6A2D8739-728B-4508-A9E8-3EEDE0A43D3E

Introduction

Everyone probably knows blowflies, but this mainly refers to the metallic green and blue shiny representatives that prefer to develop in dead animal substances and are also ubiquitous in human environment. In contrast, however, this nearly globally distributed family is species-rich and heterogeneous in both habitus and lifestyle. Partly due to this high diversity, Calliphoridae were currently predominantly regarded as a para- or polyphyletic group (e.g. Cerretti et al. 2017, Kutty et al. 2010, Marinho et

al. 2012, Rognes 1997, Singh & Wells 2013). With the redefinition of the family as a well-documented monophylum, the long-standing debate was recently supplemented by the paper of Yan et al. (2021). The latter authors used more than 2000 individually occurring nuclear protein-coding genes of Diptera in a phylogenomic analysis. As a result, they formed Calliphoridae in a broader sense and accepted also Mesembrinellidae, Mystacinobiidae, Oestridae, Polleniidae, Sarcophagidae, Tachinidae, and Ulurumyiidae as families in the superfamily Oestroidea. Furthermore, Calliphoridae are subdivided into the subfamilies Ameniinae, Bengaliinae, Calliphorinae, Chrysomyinae, Luciliinae, Phumosiinae, Rhiniinae, and Rhinophorinae.

Adult Rhinophorinae are small to medium-sized flies of non-uniform appearance. Since they have no known autapomorphies, their identification and delimitation are difficult. Likewise, their position in the phylogenetic system of Diptera was controversial and unstable in the past. McAlpine (1989) placed Rhinophoridae as a sister group to Tachinidae, Kutty et al. (2010) to Polleniidae, and Cerretti et al. (2017) as a sister to the branch Tachinidae and Polleniidae. In contrast, Kutty et al. (2019) and Buenaventura et al. (2020) classified them in a branch together with other subfamilies of Calliphoridae. In this paper, the taxon is treated as a subfamily of Calliphoridae based on the phylogenomic analyses of Yan et al. (2021), which is also largely in line with the views of Herting (1961, 1993) and Tschorsnig (1985).

In contrast to adult morphology, the larval life history of Rhinophorinae is unique and very specific: all species of which the biology is known are highly specialized parasitoids of terrestrial isopods (Bedding 1973; Pape & Arnaud 2001; Cerretti et al. 2014, 2020).

The problems of using morphological characters of adults in Rhinophorinae are not found only in the delimitation of the subfamily but also in the definition of the genera and species. In many cases, the status or generic affiliation of species has been revised, and new genera and species are constantly being described, especially from the southern hemisphere (Cerretti et al. 2014, 2020; Gisondi et al. 2020). But there are still some undescribed Rhinophorinae in the Mediterranean, too (Ziegler & Tóthová 2019). Currently, 181 species in 35 genera are described worldwide (Cerretti et al. 2020, 2024; Gisondi et al. 2020). The present work aims to continue the efforts to improve the knowledge of the Rhinophorinae. In this first step, the Palaearctic genera *Acompomintho* Villeneuve, 1927 and *Tricogena* Rondani, 1856 are treated.

Material and methods

Morphological analysis. Examination of the morphological characteristics was conducted on all species of the genera *Acompomintho* and *Tricogena* (Tab. 1). Additionally, a study of species from other Palaearctic-distributed genera was undertaken: *Azaisia* Villeneuve, 1939, *Melanophora* Meigen, 1803, *Oplisa* Rondani, 1862, *Paykullia* Robineau-Desvoidy, 1830, *Phyto* Robineau-Desvoidy, 1830, *Rhinomorinia* Brauer & Bergenstamm, 1889, *Stevenia* Robineau-Desvoidy, 1830, and *Tromodesia* Rondani, 1856.

The morphological terminology used in this paper follows Cumming & Wood (2017) and Cerretti et al. (2020). Measurements and ratios were calculated as proposed by Tschorsnig & Herting (1994) and Tschorsnig & Richter (1998). Statements given in square brackets in the description refer to the holotype. The overall lengths of specimens (in millimeters) were measured in lateral view from the anterior margin of the head, excluding the antenna, to the tip of the abdomen. The label data are given verbatim, with a forward slash separating different lines and a double forward slash separating different sides of a label or different labels. Additional descriptive information is included in square brackets.

Most reference specimens are pinned flies. To examine the terminalia, specimens were placed in a moist chamber for 48 hours or more, then the last abdominal segments were dissected and placed in 10% potassium hydroxide (KOH) for 1 to 2 days until the structures could be separated. In persistent cases, the KOH was carefully heated (not boiled) to speed up the process. To neutralize the KOH, the terminalia were then placed in a 10% acetic acid solution for 2 minutes and washed with water. After examination, the terminalia were placed in glycerin in small tubes that were pinned under the corresponding specimens. A Leica® MZ 12.5 stereomicroscope equipped with a drawing tube was used to prepare drawings of male terminalia. The drawings were processed using Adobe® Photoshop CS2. Photographs of museum specimens were taken using a Stonemaster Stack-Unit equipped with an Olympus® OM-D digital camera, and serial images were stacked using Helicon Focus® 7.6.4. A Canon® EOS 500D camera, a Canon® EF 100 mm macro lens, and a Canon® macro ring lite MR-14EX were used to photograph live specimens.

The material studied is deposited in the following collections (acronyms adapted mostly from Evenhuis 2020):

BLKU	Biosystematics Laboratory, Kyushu University, Fukuoka, Japan;
GVRB	Guido Van de Weyer's collection, Reet, Belgium;
JZBG	Joachim Ziegler's collection, Bernau, Germany;
MNHN	Muséum national d'Histoire naturelle, Paris, France;
MZFI	Museo Zoologico "La Specola", Florence, Italy;
MZLU	Museum of Zoology, Lund University, Lund, Sweden;
NMPC	Department of Entomology, National Museum of the Czech Republic, Prague, Czech Republic;
SDEI	Senckenberg German Entomological Institute, Müncheberg, Germany;
TAUI	Steinhardt Museum of Natural History, Tel Aviv University, Tel Aviv, Israel;
ZMHB	Museum für Naturkunde – Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany;
ZMUM	Zoological Museum, Moscow State University, Moscow, Russia;
ZSMC	Bavarian State Collection of Zoology, Munich, Germany.

The origins of the specimens listed in Tables 1 and 2 and in the species descriptions include previously unpublished species records for some countries (conf. Cerretti et al. 2020, Verves 2020). These are listed below: Armenia: *Oplisa oldenbergi* Herting, 1961 and *Tricogena caucasica* (Villeneuve, 1908); Greece: *Oplisa nudiseta* Zeegers, 2011; *Paykullia nubilipennis* (Loew, 1847); *Tromodesia vibripennis* Rondani, 1862; Iran: *Acompomintho sinensis* (Villeneuve, 1936); *Stevenia fausti* (Portschinsky, 1875); *Tricogena caucasica* (Villeneuve, 1908); and Kyrgyzstan:

Tromodesia setiventris (Rohdendorf, 1935).

Molecular analyses. ***Taxon sampling.*** The analysed dataset included 25 species of Rhinophorinae and 4 outgroup taxa. All the species examined in this study are listed here with complete data (Table 2). We used one specimen per species. The outgroup included *Pollenia rudis* (Fabricius, 1794) (Polleniidae), *Sarcophaga impatiens* (Walker, 1849) (Sarcophagidae), *Exorista larvarum* (Linnaeus, 1758) (Tachinidae), and *Calliphora vicina* Robineau-Desvoidy, 1830 (Calliphoridae: Calliphorinae) which was used to root the phylogenetic tree. The outgroup sequences were used from GenBank Nucleotide Database (Sayers et al. 2025).

DNA extraction, PCR and sequencing. The adult flies used for DNA analysis were air-dried or ethanol-preserved. The DNA was extracted using the DNeasy Blood & Tissue Kit (QIAGEN) following the manufacturer's protocol. Individual flies or tissue portions were rinsed in PBS, placed in sterile Eppendorf tubes and after adding proteinase K, the samples were incubated overnight at 56°C. PCRs (total volume = 20 µl) were performed using primers published in Cook et al. (2004) (ribosomal 12S), Roháček et al. (2009) (ribosomal 16S), Folmer et al. (1994) (protein-encoding COIa; COI was amplified in two fragments, a and b), Simon et al. (1994) (protein-encoding COIb) and Su et al. (2008) (protein-encoding CytB and COII). Two nuclear genes, ribosomal 28S and ITS2, were amplified using primers according to Belshaw et al. (2001) and Beebe & Saul (1995), respectively. Amplified products were purified using the QIAquick PCR Purification Kit (QIAGEN). Sequencing was carried out with BigDye Terminator ver.3.1 (Applied Biosystems, Foster, CA) on an ABI 3100 genetic analysis sequencer (Perkin Elmer Applied Biosystems, Norwalk, CT). All sequences were assembled and edited in SEQUENCHER 4.8 (Gene Codes Corporation, Ann Arbor, MI). GenBank accession numbers for the sequences are listed in Tables 3 and 4.

Alignment and phylogenetic analyses. The sequences were aligned using MAFFT version 7 (Katoh & Standley 2013) on the MAFFT server (http://mafft.cbrc.jp/alignment/server/). Sequences of the protein-encoding genes (CytB, COI and COII) were checked based on amino acid translations and yielded indel-free nucleotide alignments. The final dataset consisted of 29 specimens as terminal "taxa" (29 species) and 4787 characters: 12S – 405 bp, 16S – 386 bp, 28S – 666 bp, COI – 1357 bp, COII – 662 bp, CytB – 684 bp, ITS2 – 607 bp.

To evaluate the best-fit model for the Bayesian inference (BI) and maximum likelihood (ML) analyses, the concatenated dataset was partitioned into eight sets, representing the seven gene regions [12S, 16S, 28S, COI (two fragments, a and b), COII, CytB and ITS2]. Additional 4 sets represented the third positions of the protein-encoding genes (COIa, COIb, COII, CytB). Each partition was evaluated in MrModeltest v2.2 (Nylander 2004) using both hierarchical likelihood ratio tests (hLRTs) and Akaike Information Criterion (AIC). The model GTR+ I + G was chosen as the best fitting model for all the partitions except for the third positions. For the third positions, we used the optimal HKY+ I + G evolutionary model for all the model-based analyses. The node support values are given with the posterior probability (PP) and/or the bootstrap value (BV) appearing below nodes in the relevant trees (see Figs 2A, 2B). The partitioned Bayesian inference of 15 million generations on the concatenated dataset was implemented in MrBayes 3.2.6 (Huelsenbeck & Ronquist 2001) and carried out on the CIPRES computer cluster (Cyberinfrastructure for Phylogenetic Research; San Diego Supercomputing Center, Miller et al. 2010). The ML analyses were conducted on the CIPRES computer cluster using RAxML-HPC Blackbox 7.6.3 (Stamatakis 2006) employing automatic bootstrapping (nreps=1000) on the partitioned dataset. Trees were rooted by the outgroup taxon *Calliphora vicina* and the resulting tree was edited using iTOLv.6 (Letunic & Bork 2024).

The results based on the BI and RAxML analyses of the dataset are presented in Fig. 60. The resulting tree displays Bayesian topologies with node support values from both BI and RaxML analyses. For the Bayesian analysis the standard deviation of split frequencies was < 0.002 in all cases. The mean log-likelihood value for the best BI tree was -27595.14, for the ML tree it was -29032.333184.

Table 1. List of species of the genera *Acompomintho* Villeneuve, 1927 and *Tricogena* Rondani, 1856 used for morphological examination in the present study.

Species	Origin	Collection acronym
Acompomintho carmanica Ziegler sp. nov.	Iran: Kerman province	ZMHB
Acompomintho gavryushini Ziegler sp. nov.	Kazakhstan: Almaty region	ZMUM, ZMHB
Acompomintho itoshimensis Kato & Tachi, 2016	Japan: Kyushu, Fukuoka	BLKU
Acompomintho lobata Villeneuve, 1927	Taiwan: Maruyama & Tainan	SDEI
Acompomintho sinensis (Villeneuve, 1936)	Iran: Kerman & Razavi Khorasan provinces	NMPC, ZMHB
Tricogena caucasica (Villeneuve, 1908) comb. nov.	Iran: Ardabil & Kordistan provinces; Armenia: Ararat province	ZMHB, JZBG
Tricogena grandiloba (Kugler, 1978) comb. nov.	Israel: Northern district [description Kugler 1978: 82]	TAUI
Tricogena rubricosa (Meigen, 1824)	France: Hautes Alpes; Germany: Baden-Württemberg, Bavaria, Brandenburg, Hesse & Saxony-Anhalt; Italy: Trentino-Alto Adige; Switzerland: Valais	JZBG, ZSMC

Table 2. List of species used for phylogenetic analyses in the present study.

Family, Taxon, Author	Origin	Collection
Polleniidae *Pollenia rudis* (Fabricius, 1794)	GenBank	
Sarcophagidae *Sarcophaga impatiens* (Walker, 1849)	GenBank	
Tachinidae *Exorista larvarum* (Linnaeus, 1758)	GenBank	
Calliphoridae: Calliphorinae *Calliphora vicina* Robineau-Desvoidy, 1830	GenBank	
Calliphoridae: Rhinophorinae		
Acompomintho carmanica Ziegler sp. nov.	Iran, Kerman province, Gohargaz, 2085 m, 30°26′31″N, 57°12′32″E, 13.–15. iv.2015, leg. Iran Expedition II	ZMHB
Acompomintho gavryushini Ziegler sp. nov.	Kazakhstan, Almaty region, Ile Alatau Mountain Range near Kyrgauldy, 1000 m, 43°09′41″N, 76°43′43″E, 13.vi.2008, leg. D. Gavryushin	ZMUM, ZMHB
Azaisia obscura (Villeneuve, 1939)	Portugal, Madeira Island, Ribeira Frio, 32°40′43″N, 17°03′58″W, 28.v.2009, leg. D. Vanderpoorten	GVBR
Melanophora roralis (Linnaeus, 1758)	Germany, Baden-Württemberg, Grenzach-Wyhlen, Rötelstein, 440 m, 47°33′22″N 07°40′46″E, 9.–30.v.2011, leg. Doczkal & Ssymank	JZBG
Oplisa nudiseta Zeegers, 2011	Greece, Thessaly region, Pilion peninsula, Platania, 39°N, 23°E, 2.x.2007, leg. K. Standfuss	JZBG
Oplisa oldenbergi Herting, 1961	Armenia, Tavush province, Matosavank, 1420–1550 m, 40°45′N, 44°48′E, 27.vii.2015, leg. A. C. Pont	JZBG
Paykullia kugleri (Herting, 1961)	Israel, Haifa district, Nahsholim, 10 m, 32°37′N, 34°55′E, 01.iii.1995, leg. C. Lange & J. Ziegler	JZBG
Paykullia maculata (Fallén, 1815)	Germany, Saxony, Sächsische Schweiz, Kleiner and Grosser Bärenstein near Pirna, 250 m, 50°56′27″N, 14°02′51″E, 21.vi.2008, leg. C. Lange & J. Ziegler	JZBG
Paykullia nubilipennis (Loew, 1847)	Greece, Ionian Islands, Kefalonia, National Park Enos, mountain meadows near Vounos, 1300 m, 38°09′11″N, 20°38′02″E, 26.v.2004, leg. B. & G. Degen	JZBG
Phyto adolescens Rondani, 1860	Greece, Peloponnese, Lakonias province, Skala near Areopoli, 435 m, 36°40′47″N, 22°25′25″E, 28.iv.2005, leg. C. Lange & J. Ziegler	JZBG
Phyto cingulata (Zetterstedt, 1844)	Italy, South Tyrol, Vinschgau, Sonnenberg near of Latsch, Sankt Martin am Kofel, 1700 m, 46°38′39″N, 10°51′09″E, 14.vii.2005, leg. C. Lange & J. Ziegler	JZBG
Phyto discrepans (Pandellé, 1896)	Spain, Asturias, Cabo de Penas near Oviedo, 80 m, 43°39′02″N 05°51′08″E, 21.viii.2015, leg. P. Alvarez	JZBG
Phyto melanocephala (Meigen, 1824)	Germany, Thuringia, Hainspitz near Eisenberg, 290 m, 50°57′40″N, 11°51′02″E, 24.vii.2007, leg. C. Lange & J. Ziegler	JZBG
Rhinomorinia sarcophagina (Schiner, 1862)	Germany, Bavaria, Albertshof near Forchheim, 350 m, 49°50′04″N, 11°16′17″E, 02.vi.2007, leg. C. Lange & J. Ziegler	JZBG
Stevenia actenata Zeegers, 2008	Yemen, 12 km northwest of Manakhah, 27.iii.–05.v.2002, leg. A. v. Harten	ZMHB, JZBG
Stevenia atramentaria (Meigen, 1824)	Germany, Bavaria, Wohnsgehaig near Bayreuth, Neubürg Mtn., 580 m, 49°53′29″N, 11°24′07″E, 03.vi.2007, leg. C. Lange & J. Ziegler	JZBG
Stevenia eggeri (Mik, 1906)	Croatia: Splitsko-dalmatinska province, Biokovo Mts., Igrane southeast of Makarska, 160 m, 43°12′19″N, 17°07′38″E, 19.v.2012, leg. C. Lange & J. Ziegler	ZMHB, JZBG
Stevenia fausti (Portschinsky, 1875)	Iran, Ardabil province, Arbabkandi northeast of Meshgin Shahr near Ardabil, 1130 m, 38°30′17″N, 48°01′59″E, 16.vii.2008, leg. J. Ziegler	ZMHB
Stevenia gilasiani Ziegler, Gisondi & Cerretti, 2019	Iran, Azarbayjan-e Gharbi prvovince, Kulabi (Ulugh Dagh) south of Disaj near Orumiyeh, Mountain top, 2250 m, 37°09′52″N, 44°53′09″E, 24.vii.2008, leg. J. Ziegler	ZMHB
Stevenia signata (Mik, 1866)	Greece, Thessaly, Pilion peninsula, Platania, 39°N, 23°E, 25.viii.2005, leg. K. Standfuss	JZBG
Stevenia triangulata (Loew, 1847)	Greece, Dodekanisos, Rodos island, Kallithea south of Rodos city, 100 m, 36°23′06″N, 28°14′20″E, 04.iv.2004, 100 m, leg. C. Lange & J. Ziegler	JZBG
Tricogena caucasica (Villeneuve, 1908) comb. n.	Iran, Ardabil province, Arbabkandi northeast of Meshgin Shahr near Ardabil, 1130 m, 38°30′17″N, 48°01′59″E, 16.vii.2008, leg. J. Ziegler	ZMHB
Tricogena rubricosa (Meigen, 1824)	Germany, Hesse, Halberg near Neumorschen near Melsungen, 210 m, 51°03′46″N, 09°36′07″E, 16.vi.2007, leg. C. Lange & J. Ziegler	JZBG
Tromodesia setiventris (Rohdendorf, 1935)	Kyrgyzstan, Batken province, Turkestan mountain range, Bulak-Bashi near Isfana, 960 m, 39°58′41″N, 69°34′30″E, 26.vi.2012, leg. J. Ziegler	ZMHB
Tromodesia vibripennis Rondani, 1856	Greece, Thessaly region, Pilion peninsula, Platania, 39°N, 23°E, 23.ix.2016, leg. L. Standfuss	JZBG

Table 3. List of GenBank accession numbers of the analysed gene fragments of 25 rhinophorid species.

Taxon	Code intern	12S	16S	COIa	COIb	COII	CytB	28S	ITS2
Acompomintho carmanica	Zi 144	PV032401	PV032407	PV023363	PV029912	PV052920	PV036954	PV032413	PV035185
Acompomintho gavryushini	Zi 088	KP004605	KP004678	N/A	N/A	KP004773	N/A	KP004511	KP004554
Azaisia obscura	Zi 063	KP004606	KP004679	KP004745	KP004858	N/A	KP004810	KP004512	KP004555
Melanophora roralis	Zi 114	KP004609	KP004682	N/A	KP004860	N/A	KP004812	KP004514	KP004558
Oplisa nudiseta	Zi 065	KP004613	KP004684	N/A	N/A	N/A	KP004816	KP004517	KP004561
Oplisa oldenbergi	Zi 126	PV032398	PV032404	PV023360	PV029910	PV052917	PV036956	PV032410	PV035184
Paykullia kugleri	Zi 054	KP004616	KP004686	N/A	N/A	N/A	N/A	N/A	KP004564
Paykullia maculata	Zi 087	KP004617	KP004687	N/A	N/A	N/A	KP004817	N/A	KP004565
Paykullia nubilipennis	Zi 066	KP004618	KP004688	N/A	N/A	N/A	N/A	KP004520	KP004566
Phyto adolescens	Zi 008	KP004619	KP004689	KP004748	KP004863	N/A	KP004818	KP004521	KP004567
Phyto cingulata	Zi 009	KP004621	KP004691	KP004749	KP004864	N/A	KP004819	KP004522	KP004568
Phyto discrepans	Zi 133	PV032399	PV032405	PV023361	N/A	PV052918	PV036955	PV032411	N/A
Phyto melanocephala	Zi 011	KP004623	KP004693	KP004750	KP004865	KP004777	KP004821	KP004524	KP004570
Rhinomorinia sarcophagina	Zi 012	KP004628	KP004698	N/A	KP004866	KP004779	KP004824	KP004527	KP004573
Stevenia actenata	Zi 018	KP004631	KP004701	N/A	N/A	KP004780	KP004826	KP004530	N/A
Stevenia atramentaria	Zi 085	PV032397	PV032403	PV023359	PV029909	PV052916	PV036957	PV032409	PV035183
Stevenia eggeri	Zi 073	KP004642	KP004712	KP004756	KP004870	KP004787	KP004834	KP004536	N/A
Stevenia fausti	Zi 027	KP004644	KP004714	KP004757	KP004871	KP004789	KP004836	KP004537	KP004583
Stevenia gilasiani	Zi 024	PV032396	PV032402	PV023358	PV029908	PV052915	PV036958	PV032408	N/A
Stevenia signata	Zi 033	KP004647	KP004717	KP004758	KP004872	KP004791	KP004838	KP004538	KP004585
Stevenia triangulata	Zi 049	KP004668	KP004737	N/A	N/A	KP004801	KP004849	KP004546	KP004599
Tricogena caucasica	Zi 016	KP004671	KP004740	KP004767	KP004881	KP004803	KP004851	KP004548	KP004601
Tricogena rubricosa	Zi 086	KP004673	KP004742	KP004768	KP004882	KP004805	KP004853	KP004549	KP004602
Tromodesia setiventris	Zi 075	KP004674	KP004743	KP004769	KP004883	KP004806	KP004854	KP004550	N/A
Tromodesia vibripennis	Zi 138	PV032400	PV032406	PV023362	PV029911	PV052919	N/A	PV032412	N/A

Table 4. List of GenBank accession numbers of the analysed gene fragments of the four outgroup species used in the analyses.

Taxon	12S	16S	COIa	COIb	COII	CytB	28S	ITS2
Calliphora vicina	JX913760	JX913760	JX913760	JX913760	JX913760	JX913760	JQ246617	EF061803
Exorista larvarum	AB699910	KC177447	AB700013	N/A	N/A	KC177591	KC177833	N/A
Pollenia rudis	GQ409088	GQ409146	JX438050	JQ807056	N/A	GQ409419	GQ409263	N/A
Sarcophaga impatiens	383931284: 14025-14810	383931284: 12631-13957	383931284: 1411-2944	383931284: 1411-2944	383931284: 3017-3704	383931284: 10397-11533	N/A	N/A

Results

Taxonomy

Genus *Acompomintho* Villeneuve, 1927

Acompomintho Villeneuve, 1927: 223. Type species: *Acompomintho lobata* Villeneuve, 1927, by monotypy.

Acampomintho (incorrect subsequent spelling): Townsend (1931: 383), Lopes (1938: 555), Herting (1961: 5).

Wagneriopsis Townsend, 1927: 281. Type species: *Wagneriopsis formosensis* Townsend, 1927, by original designation. Synonymised by Townsend (1931).

Remarks. The genus *Acompomintho* was established by Villeneuve (1927). He included only one new species, *A. lobata*, and subsequent authors accepted the genus as monotypic. Almost 90 years later, Kato & Tachi (2016) described a second species, *Acompomintho itoshimensis*. The species described by Villeneuve (1908) as *Frauenfeldia caucasica* and by Villeneuve (1936) as *Frauenfeldia sinensis* are resurrected as valid species in the genus *Acompomintho* by Cerretti et al. (2020), which we can accept for the species *A. sinensis* only. Two new species, *A. carmanica* Ziegler spec. nov. and *A. gavryushini* Ziegler spec. nov., are also described here. *Frauenfeldia caucasica* is now placed in the genus *Tricogena* and redescribed in both sexes (see below). Because of these changes and additions, it was necessary to redefine the genus *Acompomintho*.

Overview of treated species of the genus *Acompomintho* Villeneuve, 1927

Acompomintho carmanica Ziegler sp. nov.
Acompomintho gavryushini Ziegler sp. nov.
Acompomintho itoshimensis Kato & Tachi, 2016
Acompomintho lobata Villeneuve, 1927
Acompomintho sinensis (Villeneuve, 1936)

Diagnosis and redefinition of the genus. Vertex broad, at its narrowest point 0.95–1.45 times as wide as eye in dorsal view. Lateral (outer) vertical setae usually differentiated from postocular row, but small and thin, 0.3–0.5 times as long as the medial vertical setae. Height of gena variable, in profile 0.15–0.45 times vertical diameter of eye. Antenna

long and slender, longer than genal height, first flagellomere about 3.2–4.8 times as long as pedicel and 2.9–4.5 times as long as wide, antennal insertion distinctly above middle of eye. Second aristomere elongate, 1.5–3.5 times as long as wide. First postsutural supra-alar seta absent or very short, distinctly shorter and weaker than notopleural setae. Postpronotum with 2–3 setae, if 3 than forming a slightly curved row or a triangle). Two to three strong katepisternal setae, anterior seta robust and more than 2/3 as long as posterodorsal katepisternal seta. Scutellum with 2 pairs of strong marginal setae (lateral and apical), basal setae are thinner and shorter or not differentiated. Anterior and posterior lappets of metathoracic spiracle small, approximately equal in size and standing out from spiracular rim. Vein M_1 with distinct bend, fused to vein R_{4+5}, so that cell r_{4+5} is petiolate. Vein R_1 bare dorsally. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section approximately 0.6–0.8 of total length of CuA+CuP. First tarsomere of foreleg basal with ventral comb formed by a few long but thin setae. Male sternite 5 large and convex, longer than wide, posterior margin with deep cleft, lateral lobe large, medial margin of lateral lobe with or without tooth-like or undulating protuberances (apophysis). Surstyli of male terminalia fused with bacilliform sclerites. Surstyli with a tuft of fine setulae inside at the base. Ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus with membranous extension. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite (Figs 17, 18).

Key to species. There is no identification key to the species of the genus *Acompomintho* in the literature. Distinguishing features for *A. itoshimensis* and *A. lobata* are given by Kato & Tachi (2016).

1 Wing cell r_{4+5} long petiolate, petiole at least 1.4 times as long as post-angular portion of M; male mid femur with or without posteroventral ctenidium; medial margin of lateral lobe of male sternite 5 with or without tooth-like or undulating pad-like protuberances; smaller species, body length 2.8–6.0 mm. 2
– Wing cell r_{4+5} shorter petiolate, petiole not more than 1.0 times as long as post-angular portion of M; male mid femur with posteroventral ctenidium; medial margin of lateral lobe of male sternite 5 basally with tooth-like and undulating pad-like protuberances (Figs 5, 29); medium sized species, body length 5.5–8.8 mm. 4
2 Facial profile receding, lower facial margin not visible in lateral view; parafacial with strong medioclinate setae on lower half; prementum about 3.0–4.0 times as long as wide; mid tibia with 1–2 anterodorsal setae, 2 posterodorsal setae and 1 ventral seta; male mid femur without posteroventral ctenidium, frons with 1–2 proclinate orbital setae; medial margin of lateral lobe of male sternite 5 without tooth-like or undulating pad-like protuberances. 3
– Facial profile not receding, lower facial margin somewhat visible in lateral view; parafacial without strong medioclinate setae on lower half; prementum about 5.5–6.5 times as long as wide (Figs 11, 12); mid tibia with 1 anterodorsal seta, 1 posterodorsal seta and without ventral setae; male mid femur with posteroventral ctenidium, frons without proclinate orbital setae, medial margin of lateral lobe of male sternite 5 with tooth-like and undulating pad-like protuberances (Fig. 15) (only males known). .... ***A. gavryushini*** Ziegler **sp. nov.**
3 Wing vein M joining vein R_{4+5} at an almost right angle; gena in profile 0.3–0.4 times as wide as the vertical diameter of eye; vertex usually with one proclinate orbital setae in both sexes, rarely with two; first flagellomere about 3.0–3.5 times as long as wide (Figs 22, 23); mid tibia with 1 anterodorsal seta; abdomen with bands of silvery microtrichosity. .... ***A. lobata*** Villeneuve, 1927
– Wing vein M joining vein R_{4+5} at an acute angle; gena narrower, in profile 0.20–0.25 times as wide as the vertical diameter of eye; vertex with 2–3 proclinate orbital setae in both sexes, the posterior seta much shorter than the anterior ones; first flagellomere about 4.0–5.5 times as long as wide (Figs 20, 21); mid tibia with 2 anterodorsal setae; abdomen without microtrichosity. .... ***A. itoshimensis*** Kato & Tachi, 2016
4 Face 1.6–1.8 times as long as frons; male vertex at its narrowest point 1.23–1.28 times as wide as eye in dorsal view; parafacial with 2–4 strong medioclinate setae on lower half; first flagellomere with straight fore edge, 4.0–4.5 times as long as wide. Two strong katepisternal setae. Wing cell r_{4+5} with petiole 0.6–1.0 times as long as post-angular portion of M, the section of M between crossveins r-m and dm-m (dm-cu) 1.5 times as long as the section between dm-m (dm-cu) and bend of M (Figs 1, 2). Fore tibia with 2 anterodorsal setae, without posterior and posterodorsal seta, mid tibia with 1 anterodorsal seta. Abdominal tergite 5 with very narrow band of light grey microtrichosity on anterior 1/10 (only males known). .... ***A. carmanica*** Ziegler **sp. nov.**
– Face 1.2–1.3 times as long as frons; male vertex at its narrowest point 0.95–1.05 times as wide as eye in dorsal view; parafacial without strong medioclinate setae on lower half; first flagellomere crescent- or sickle-shaped (with fore edge concave), in male 2.9–3.0 times as long as wide. Three strong katepisternal setae. Wing cell r_{4+5} petiolate, but petiole very short, only 0.05–0.15 times as long as post-angular portion of M, the section of M between crossveins r-m and dm-m (dm-cu) 2.0–2.2 times as long as the section between dm-m (dm-cu) and bend of M (Figs 25, 26). Fore tibia with 3 anterodorsal setae, with 1 posterior and 1 posterodorsal seta, mid tibia with 2 anterodorsal setae. Abdominal tergite 5 with band of light grey microtrichosity on anterior 1/2–3/4. ..... ***A. sinensis*** (Villeneuve, 1936)

Acompomintho carmanica Ziegler sp. nov.

Type material. Holotype: ♂ (pinned, ZMHB), Iran, Kerman Province, Kuhpaye Mtn. Range, Gohargaz 20 km northeast of Kerman, elevation 2085 m, 30°26′31″N 057°12′32″E, 13.iv.2015 or 18.iv.2015. Labels: "Iran, Kerman '56' / Gohargaz, 2085 m / N30 26 31 E57 12 32 / 13 & 18 IV 2015 / leg. Iran Expedition II // R 1.613" [white, printed]. Paratype: 1 ♂,

same data as holotype, but "R 1.614" (ZMHB), right side legs removed for DNA extraction and terminalia dissected. DNA sample number Zi144.

Description. ***Male.*** Overall length: [5.5]–5.7 mm (Figs 1–2, 3–10). *Colouration and microtrichosity.* Head black in ground colour, covered all over with silvery-grey microtrichosity, including frontal vitta, area between gena and parafacial, parafacial and occiput silvery-grey; scape, pedicel and first flagellomere black in lateral view, but silvery-grey in dorsal view; palpus dark brown. Thorax black, covered with grey microtrichosity, with three broad presutural dark grey vittae in low contrast to overall microtrichosity. Legs black. Wings hyaline, not infuscate; tegula dark brown, basicosta yellowish brown, not contrasting with light brown proximal part of costa, veins light brown; upper and lower calypters ivory white, halteres light brown. Abdomen black in ground colour, syntergite 1+2 to tergite 5 each with band of light grey microtrichosity; these bands are dorsal on syntergite 1+2 over entire length of tergite, on tergite 3 on anterior 2/3–3/4, on tergite 4 on anterior 1/2, and on tergite 5 very narrow (approximately on anterior 1/10); all bands are interrupted medio-dorsally by longitudinal black stripe; sternite and epandrium black.

Head (Fig. 2). In lateral view [0.65]–0.70 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.25–[0.30] times vertical diameter of eye. Face 1.6–[1.8] times as long as frons. Vertex at its narrowest point 1.23–1.28 times as wide as eye in dorsal view; frontal vitta medially wider than fronto-orbital plate medially; medial (inner) vertical setae strong, about 0.6 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae small and thin, 0.4 times as long as medial vertical setae; ocellar setae proclinate, similar in size to frontal setae, longer than postocellar setae; frons with 4–6 medially inclined frontal setae descending to level of pedicel, followed by strong latero-reclinate upper orbital seta placed outside of continuous row of frontal setae; without proclinate orbital setae, but with row of proclinate hair-like setulae on fronto-orbital plate, uppermost of them as strong as small proclinate orbital seta. Parafacial with 2–4 medioclinate setae on lower half, accompanied by a few thinner and shorter hair-like setulae; parafacial in upper part with some short proclinate setulae, more or less continuous from lower fronto-orbital plate; fronto-orbital plate at level of scape almost 0.40–0.45 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.30–0.35 times as wide as transverse diameter of eye and 1.0 times as wide as first flagellomere in profile. First flagellomere about 3.6–[4.5] times as long as pedicel and 4.0–4.5 times as long as wide; arista bare, nearly as long as first flagellomere, thickened in basal 0.4–0.5 of its length, first aristomere short, 1.5 times as long as wide, second aristomere about 3.0–3.5 times as long as its diameter. Lower facial margin barely visible in lateral view; vibrissa well developed, about 0.55–0.65 times as long as face height, inserted slightly above level of lower facial margin; facial ridge concave with robust setulae on lower 0.10 of its length. Occiput convex, with black setulae only posterior to postocular row. Prementum about 4.2–4.7 times as long as wide and 1.1–1.2 times as long as palpus; palpus 0.60–0.65 times as long as first flagellomere, subcylindrical, slightly enlarged apically, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum with both proepisternal setae directed anterodorsally; proepimeron with strong anterodorsally inclined seta and second (lower and weaker) seta directed more anteriorly; postpronotum with 2 strong setae and third thinner and shorter hair-like inner seta, forming slightly curved row; scutum without acrostichal setae, with 2 + 3 dorsocentral, 1 posthumeral intra-alar seta, 2 postsutural intra-alar setae separated by distance greater than distance between first seta and suture; 1 strong presutural supra-alar seta and only 1–2 postsutural supra-alar setae, first postsutural supra-alar seta undifferentiated or shorter than notopleural setae, last postsutural seta often thin or hair-like; 2 notopleural setae, postalar callus with 2 setae. Two strong katepisternal (sternopleural) setae accompanied by some thinner and shorter setae; anepimeral (pteropleural) seta indistinct, but some setula present in this position; katepimeron (barette) bare; anatergite with small tuft of tiny infrasquamal setulae below lower calypter. Metathoracic spiracle with pair of erect fringes of subequal size. Postmetacoxal area membranous. Scutellum with 2 pairs of strong marginal setae (lateral and apical), basal setae hair-like, thin and short or absent, lateral setae inserted very close to suture, almost as long as crossed strong apical setae, 1 pair of thin discal scutellar setae.

Wing. Costal spine about as long as crossvein r-m; costal section between subcostal break and R_1 bare ventrally; costal section between R_1 and R_{2+3} about 2.2–2.3 times as long as costal section between R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 1.8–2.1 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 1–3 thin setulae dorsally and ventrally; section of M between crossveins r-m and dm-m (dm-cu) 1.5 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forms nearly right angle. Wing cell r_{4+5} petiolate, petiole 0.6–0.9 times as long as post-angular portion of M. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section about 0.6–0.8 of total length of CuA+CuP. Lower calypter tongue-shaped.

Legs. Foreleg. Tibia with 2 small anterodorsal setae, without posterior and posterodorsal setae, preapical anterodorsal seta about as long as preapical dorsal seta, preapical posterodorsal seta undifferentiated; first tarsomere basally with ventral comb formed by a few long but thin setae; claws about 1.0–1.3 times as long as fifth tarsomere. Mid leg. Femur with posteroventral ctenidium (5–6 setae); tibia with 1 anterodorsal seta, 2 posterodorsal setae, and 0–1 small anteroventral seta, without posterior seta. Hind leg. Tibia with 2 anterodorsal, 2 posterodorsal, 2 anteroventral setae, and with 3 dorsal preapical setae of equal size; posterior coxal margin bare.

Abdomen. Middorsal depression of syntergite 1+2 confined to anterior 0.5 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with some lateral marginal and lateral discal setae; tergite 3 without median marginal setae and without median

Figs 1–2. *Acompomintho carmanica* Ziegler sp. nov. holotype male. 1 – head in lateral view. 2 – habitus in lateral view. The wing cell petiole appears longer than the post-angular portion of M in the photo. It should be noted that the wing is slightly twisted; therefore, the post-angular portion of M appears visually shortened.

discal setae, with a few lateral marginal and lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 half as long as tergite 4. Sternite 4 exposed. Sternite 5 (Fig. 5) large and convex, longer than wide, posterior margin with deep cleft (about 2/3 of sternite length), lateral lobe large, medial margin of lateral lobe with tooth-like or undulating protuberances (apophysis), with row of a few small setulae, with two sensilla trichoidea near base.

Terminalia (Figs 3–10). Epandrium short and convex. Cerci 3/4 as long as surstyli, widened only in basal half, with dorsomedial suture separating them. Surstyli pointed, long and anteriorly curved in lateral view, at base with tuft of fine setulae inside; fused with rod-shaped bacilliform sclerites. Bacilliform sclerites inwardly extended and fused over short distance. Ejaculatory apodeme moderately sized and fan-shaped, 0.75 times as long as aedeagus, its diameter half as wide as aedeagus length. Pregonite broad, with small hook on top and without setula. Postgonite long, narrow and hook-shaped, with setula. Aedeagus slightly arched, 1.1 times as long as surstylus. Basiphallus short, epiphallus slightly inclined, well developed and widened, but weakly sclerotized. Distiphallus connected to basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus long, with dorsally slightly inclined membranous extension, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Female. Unknown.

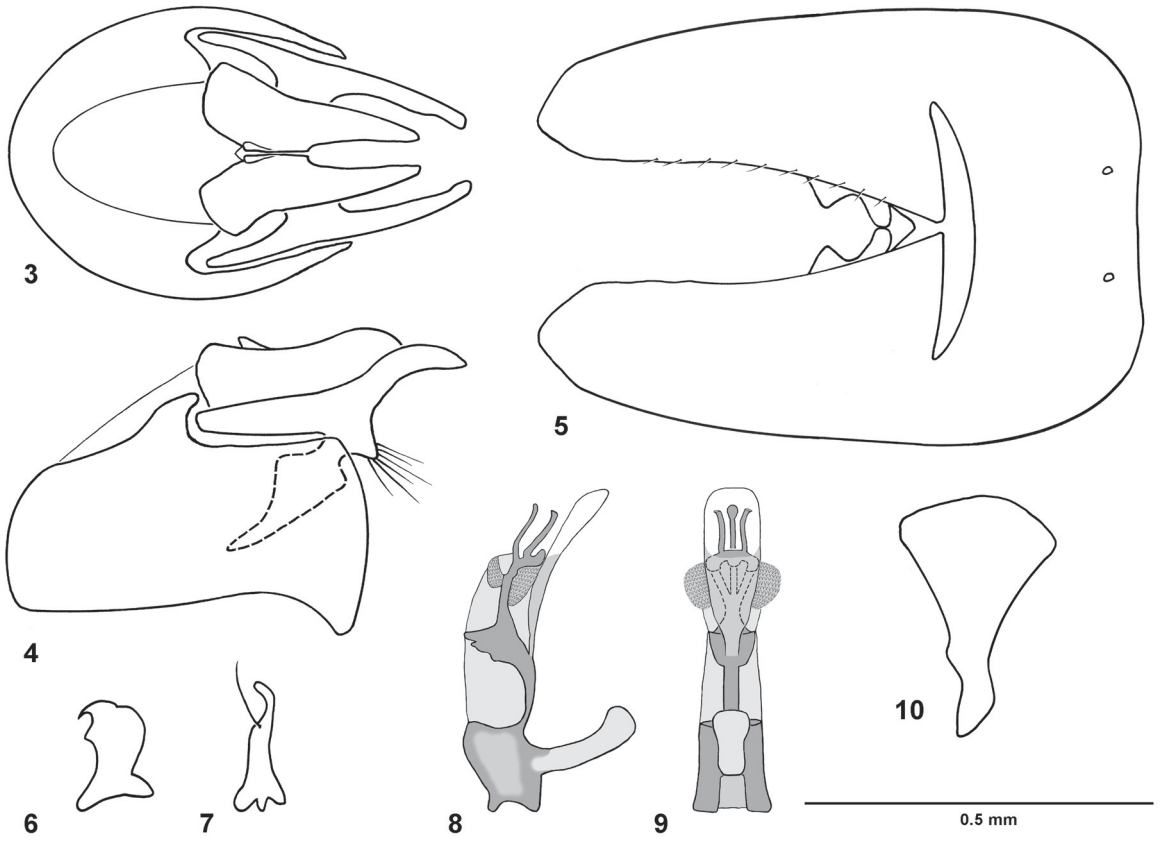
Etymology. The name *carmanica* (Latin, adjective, nominative singular feminine) means "from the Kerman area" and refers to the known distribution. Carmania is the Latin name for the historical region around the present day town Kerman in Iran.

Biology. Adults are active in the high mountain region at an altitude of 2000 m in April, otherwise unknown.

Distribution. Palaearctic Region – southeast Iran, Kerman Province, Kuhpayeh Mountain Range northeast of Kerman (Fig. 63).

Acompomintho gavryushini Ziegler sp. nov.

Type material. Holotype: ♂ (with left side glued to a card point, ZMUM), Kazakhstan, Tian Shan, Ile Alatau Mountain Range southwest of Almaty, valley near Kyrgauldy, elevation 1000 m, 43°09′41″N 076°43′43″E, 13.vi.2008; leg. Dmitry Gavryushin. Labels: "КАЗАХСТАН: окр. Алматы, / (43.161486°N, 76.728567°E) / 13.VI.2008, Д. Гаврюшин"



Figs 3–10. *Acompomintho carmanica* Ziegler sp. nov. paratype male. Morphological details of sternite 5 and the male terminalia. 3–4 – epandrium, surstyli and cerci in posterior (caudal) view and in lateral view with bacilliform sclerite (dashed line). Setulose area inside the base of surstyli is presented, all other setae and setulae are omitted. 5 – sternite 5 in ventral view. Row of setulae along the medial margin of lateral lobe is presented, all other setae and setulae are omitted. 6–7 – pregonite and postgonite in lateral view. 8–9 – aedeagus in lateral and dorsal view. 10 – ejaculatory apodeme.

[white, printed]. Paratype: 1 ♂, same data as holotype and label "0.999" (ZMHB), two legs removed from right side for DNA extraction and terminalia dissected. DNA sample number Zi088.

Description. ***Male*** (measurements in square brackets refer to the holotype). Overall length: 3.0–[3.4] mm (Figs 11–12, 13–19).

Colouration and microtrichosity. Head black in ground colour, covered all over with grey microtrichosity, including frontal vitta, area between gena and parafacial, parafacial and occiput grey or yellowish grey; scape and first flagellomere black in lateral view but grey in dorsal view, pedicel dorsoapical with yellowish brown rim; palpus dark brown. Thorax black, covered with grey microtrichosity, with three broad presutural dark grey vittae in low contrast with overall microtrichosity. Legs black. Wings hyaline, tegula dark brown, basicosta yellowish brown, not contrasting with yellowish brown proximal part of costa, veins brown; upper and lower calypters ivory white, halter light brown. Abdomen black in ground colour, syntergite 1+2 to tergite 4 each with band of light grey microtrichosity, changing from narrow and dense band anteriorly to low density along entire length when viewed from different directions; all bands are largely interrupted medio-dorsally by longitudinal black triangle; tergite 5 without microtrichosity; sternite and epandrium black.

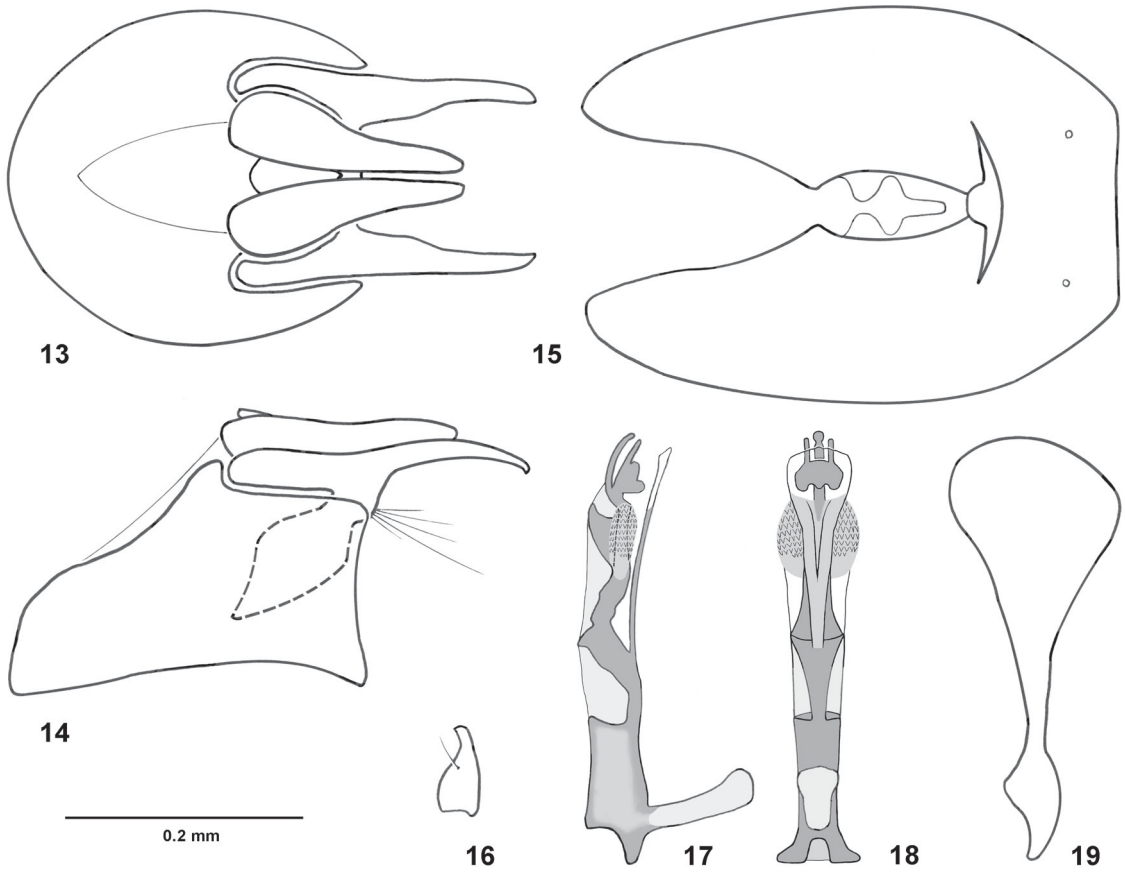
Head (Fig. 12). Nearly quadrate in lateral view, 0.8 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.15–0.25 times vertical diameter of eye. Face 1.1–1.2 times as long as frons. Vertex at its narrowest point 1.35–1.45 times as wide as eye in dorsal view; frontal vitta almost twice as wide as fronto-orbital plate medially; medial (inner) vertical setae strong, about 0.8 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae 0.5 times as long as medial vertical setae; ocellar setae proclinate, postocellar setae of similar size; frons with 4–5 medially inclined frontal setae descending to level of pedicel, uppermost seta medio-reclinate, and strong reclinate upper orbital seta positioned outside of continuous row of frontal setae; no proclinate orbital setae, but with a few proclinate hairlike setulae on fronto-orbital plate. Parafacial without strong medioclinate setae on lower half, but with row of thin setulae present along entire length of parafacial, more or less continuous from lower fronto-orbital plate; fronto-orbital plate at level of scape nearly 0.3 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.15 times as wide

Figs 11–12. *Acompomintho gavryushini* Ziegler sp. nov. holotype male. 11 – head in lateral view. 12 – habitus in lateral view.

as transverse diameter of eye and 0.5 times as wide as first flagellomere in profile (0.7 in real). First flagellomere about 4.8 times as long as pedicel and 3.4 times as long as wide; arista bare, real 1.0–1.25 times as long as first flagellomere, thickened in about basal 0.3 of its length, first aristomere short, not longer than wide, second aristomere about 1.5 times as long as its diameter. Lower facial margin visible in lateral view; vibrissa well developed, about 0.6 times as long as face height, inserted slightly below level of lower facial margin; facial ridge with robust setulae on lower 0.10 of its length. Occiput flat, with black setulae only behind postocular row. Prementum about 5.5–6.5 times as long as wide and about twice as long as palpus; palpus 0.6 times as long as first flagellomere, subcylindrical, slightly enlarged apically, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum with one proepisternal seta directed anterodorsally; proepimeron with one strong anterodorsally inclined seta and second (lower and weaker) anteriorly directed seta; postpronotum with 3 setae forming slightly curved row, inner seta short; scutum without acrostichal setae, with 2 + 3 dorsocentral, 1 posthumeral intra-alar seta, 2 postsutural intra-alar setae, separated by distance greater than distance between first seta and suture; 1 strong presutural supra-alar seta and 1 postsutural supra-alar seta (first and third undifferentiated); 2 notopleural setae, postalar callus with 2 setae. Two strong katepisternal (sternopleural) setae accompanied by some thinner and shorter setae; with 1 anepimeral (pteropleural) seta; katepimeron (barette) bare. Metathoracic spiracle with pair of erect fringes of subequal size. Postmetacoxal area membranous. Scutellum with 2 pairs of strong marginal setae (lateral and apical), basal setae not undifferentiated, lateral setae inserted very close to suture, slightly longer than crossed strong apical setae; 1 pair of thin discal scutellar setae.

Wing. Costal spine inconspicuous, slightly shorter than crossvein r-m; costal section between subcostal break and R_1 bare ventrally, but sometimes with 1–2 setulae at base; costal section between R_1 and R_{2+3} about 2.2 times as long as costal section between R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 3.5–3.7 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 1 setula dorsally; section of M between crossveins r-m and dm-m (dm-cu) 0.55 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forming obtuse angle. Wing cell r_{4+5} distinct petiolate, petiole 2.2–2.8 times as long as post-angular portion of M. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section approximately 0.6–0.8 of total length of CuA+CuP. Lower calypter tongue-shaped.



Figs 13–19. *Acompomintho gavryushini* Ziegler sp. nov. paratype male. Morphological details of sternite 5 and the male terminalia. 13–14 – epandrium, surstyli and cerci in posterior (caudal) view and in lateral view with bacilliform sclerite (dashed line). Setulose area inside the base of surstyli is presented, all other setae and setulae are omitted. 15 – sternite 5 in ventral view. Row of setulae along the medial margin of lateral lobe is missing, all other setae and setulae are omitted. 16 – postgonite in lateral view. 17–18 – aedeagus in lateral and dorsal view. 19 – ejaculatory apodeme.

Legs. Fore leg. Tibia with 1 small anterodorsal seta, without posterior and posterodorsal seta, preapical anterodorsal seta somewhat smaller and thinner than preapical dorsal seta, preapical posterodorsal seta not differentiated; claws about 1.0 times as long as fifth tarsomere. Mid leg. Femur with posteroventral ctenidium (4 stout setae); tibia with 1 anterodorsal seta, without posterodorsal setae, and with 1 posterior seta. Hind leg. Tibia with 2 anterodorsal, 2 posterodorsal, 1 anteroventral seta, and with 3 dorsal preapical setae; posterior coxal margin bare.

Abdomen. Mid-dorsal depression of syntergite 1+2 confined to anterior 0.5 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with 1 lateral marginal and a few lateral discal setae; tergite 3 without median discal setae and median marginal setae, but with lateral marginal setae forming incomplete row, and with lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 is 0.6 times as long as tergite 4. Sternite 4 exposed. Sternite 5 (Fig. 15) large and convex, longer than wide, posterior margin with deep cleft (about 2/3 of sternite length), lateral lobe large, medial margin of lateral lobe with undulating protuberances (apophysis), without row of setulae, with two sensilla trichoidea near base.

Terminalia (Figs 13–19). Epandrium short and convex. Cerci 3/4 as long as surstyli, widened only in basal half, separated dorsomedially. Surstyli pointed, long, slender, and slightly curved anteriorly in lateral view, at base with tuft of fine setulae inside; fused with stick-like bacilliform sclerites. Bacilliform sclerites inwardly extended and connected to each other for short distance. Ejaculatory apodeme large and fan-shaped, as long as aedeagus, its diameter 0.4 times as wide as aedeagus length. Postgonite hook-shaped, with setula at mid-length. Aedeagus long and slender, almost straight, 1.4 times as long as surstylus. Basiphallus short, epiphallus slightly inclined, well developed and widened, but weakly sclerotized. Distiphallus connected to basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus long, with small membranous extension, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Female. Unknown.

Etymology. Named after Dr. Dmitry I. Gavryushin, Zoological Museum, Moscow Lomonosov State University, Moscow, Russia, the collector of the specimens.

Biology. Adults are active in the mountain region at an altitude of 1000 m in June, otherwise unknown.
Distribution. Palaearctic Region – southern Kazakhstan, Tian Shan, Ile Alatau Mountain Range near Almaty (Fig. 63).

Acompomintho itoshimensis Kato & Tachi, 2016

Acompomintho itoshimensis Kato & Tachi, 2016: 83. Type locality: Japan, Kyushu, Fukuoka, Itoshima-shi, Shimasakurai. Holotype male in BLKU.

Type material examined. Paratypes: 3 ♂♂ (BLKU; Figs 20, 21), labels: "[Japan/Fukuoka] / Itoshima City, / Ohguchi kaigan / 27.v.2015 / H. Tachi" [white, printed] // "[PARATYPE] ♂ / *Acompomintho itoshimensis* / Kato & Tachi" [blue, printed]. In addition, terminalia illustrations and species descriptions by Kato & Tachi (2016) were examined.

Biology. Adults active from May to November on seashore vegetation. Host unknown.
Distribution. Palaearctic Region – Japan (Kyushu) (Kato & Tachi 2016).

Acompomintho lobata Villeneuve, 1927

Acompomintho lobata Villeneuve, 1927: 223. Type locality: Taiwan: Tainan. Syntypes: males and females in SDEI and probably in other collections.

Wagneriopsis formosensis Townsend, 1927: 282. Type localities: Taiwan: Anping (Tainan) and Maruyama (Taipei). Syntypes: 1 male and 1 female in SDEI; the female syntypes from Hokuto (December) and Kankau are missing. Synonymised by Townsend (1931).

Concerning the type-status see also Crosskey (1977: 58).

Type material examined. *Acompomintho lobata* Villeneuve, 1927: Syntypes: 2 ♂♂ 3 ♀♀ (SDEI), labels: "Tainan / Formosa / H. Sauter II. 09." // "Villeneuve det." [all white, printed] // TYPUS // "SYNTYPUS / *Acompomintho lobata* / Villeneuve, 1927 / exam. J. Ziegler 2024" [all red, printed]. Further 39 syntypes in SDEI, with identical labelling, sometimes without "Villeneuve det." and /or without "TYPUS", often two specimens together on a stage, not all in good condition.

Wagneriopsis formosensis Townsend, 1927. Syntypes: 1 ♂ (SDEI), labels: "Anping / Formosa / H. Sauter V. 1912" // "*Wagneriopsis* / *formosensis* T. T." [handwritten] // "det. Baranoff" [white, printed] // TYPUS // "*Acompomintho* / *lobata* / Villeneuve, 1927 / det. J. Ziegler 2024" [white, printed] // "SYNTYPUS / *Wagneriopsis* / *formosensis* / Townsend, 1927 / exam. J. Ziegler 2024" [red, printed]; 1 ♀ (SDEI), labels: "Macuyama (Form.) / H. Sauter V.-VI.1914" // "det. Baranoff" [all white, printed] // "*Wagneriopsis formosensis* / T. T." [handwritten] // "SYNTYPUS / *Wagneriopsis* / *formosensis* / Townsend, 1927 / exam. J. Ziegler 2024" [all red, printed].

Notes. Interpretation of the collecting places of the type material studied: "Tainan" is identical with the city of Tainan in southwest Taiwan, and "Anping" is now a district of Tainan. A single type specimen was collected in Maruyama (written as "Macuyama" on the label), which is now a district of the city of Taipei in northern Taiwan (see Esaki 1941).

Additional material examined. 9 specimens (SDEI), all with labels "*Wagneriopsis* / *formosensis* / TT" [handwritten] // "det. Baranoff" [white, printed] // "*Acompomintho* / *lobata* / Villeneuve, 1927 / det. J. Ziegler 2024" [white, printed]. These specimens were collected by H. Sauter on Formosa, but the collecting place and/or collecting date and/or sex are not identical with the type information given by Townsend (1927) or Villeneuve (1927); 5 ♂♂ 1 ♀ (SDEI: Oldenberg collection), labelled "Tainan / Formosa / H. Sauter II. 09. // coll. Oldenberg // *Wagneriopsis* / *formosensis* / TT // det. Baranoff // *Acompomintho* / *lobata* / Villeneuve, 1927 / det. J. Ziegler 2024". Since the collection of Lorenz Oldenberg (1863–1931) came to the SDEI after his death only (Rohlfin 1994), the specimens of *Acompomintho lobata* from his collection cannot be part of the SDEI type series that Villeneuve and Townsend had already described in 1927.

Redescription. ***Male.*** Overall length: 2.6–3.9 mm (Figs 22–24).

Colouration and microtrichosity. Head dark brown to black in ground colour, covered with light grey microtrichosity, frontal vitta dark brown, fronto-orbital plate shiny dark brown in dorsal view, area between gena and parafacial, and occiput with only faint grey microtrichosity; scape dark brown like fronto-orbital plate, pedicel and base of first flagellomere yellowish to light brown, rest of first flagellomere black in lateral view, but grey in dorsal view; palpus dark brown. Thorax black, covered with faint grey microtrichosity, without clearly differentiated presutural vittae. Legs black. Wing hyaline, not infuscate; tegula dark brown, basicosta yellowish, not contrasting with yellowish brown proximal part of costa, veins brown; upper and lower calypters ivory white, halter light brown with dark capitulum. Abdomen dark brown to black in ground colour, tergites 3 to 5 each with narrow but distinct band of silvery microtrichosity, width of bands not changing when viewed from different directions; all bands are largely interrupted medio-dorsally by wide longitudinal black stripe; sternite and epandrium black.

Head (Fig. 23) in lateral view, 0.60–0.65 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.3–0.4 times vertical diameter of eye. Face 1.3–1.5 times as long as frons. Vertex at its narrowest point 1.20–1.35 times as wide as eye in dorsal view; frontal vitta nearly as wide or slightly wider than fronto-orbital plate medially; medial (inner) vertical setae strong, about 0.7 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae 0.4 times as long as medial vertical setae; ocellar setae proclinate, of similar size as frontal setae; frons with 4–5 medially inclined frontal setae descending to level of pedicel, followed by one strong latero-reclinate upper orbital seta placed outside of continuous row of frontal setae; with 1–(2) proclinate orbital setae, accompanied from row of fine proclinate setulae on fronto-orbital plate. Parafacial with row of about 3–5 strong medioclinate setae on lower half, continued by a few thinner setulae on upper part of parafacial, more or less continuous from fronto-orbital plate; fronto-orbital plate at level of scape nearly 0.3 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.15 times as wide as transverse diameter of eye and 0.50 times as wide as first flagellomere in profile (0.6 in real). First flagellomere about 3.7–4.5 times as long as pedicel and 3.0–3.5 times as long as wide; arista bare, 0.7–1.0 times as long as first flagellomere, thickened in about basal 0.5 of its length, first aristomere short, not longer than wide, second aristomere about 2.5 times as long as its diameter. Facial profile receding, lower facial margin not visible in lateral view; vibrissa well developed, about 0.6 times as long as the height of face, inserted at level of lower facial margin; facial ridge with robust setae on lower 0.10 of its length. Occiput flat, with black setulae only posterior to postocular row. Prementum about 3.0–4.0 times as long as wide and 1.2–1.5 times as long as palpus; palpus 0.3–0.5 times as long as first flagellomere, subcylindrical, slightly enlarged

Figs 20–21. *Acompomintho itoshimensis* Kato & Tachi, 2016, paratype male. 20 – head in lateral view. 21 – habitus in lateral view.

Figs 22–23. *Acompomintho lobata* Villeneuve, 1927, syntype male. 22 – head in lateral view. 23 – habitus in lateral view.

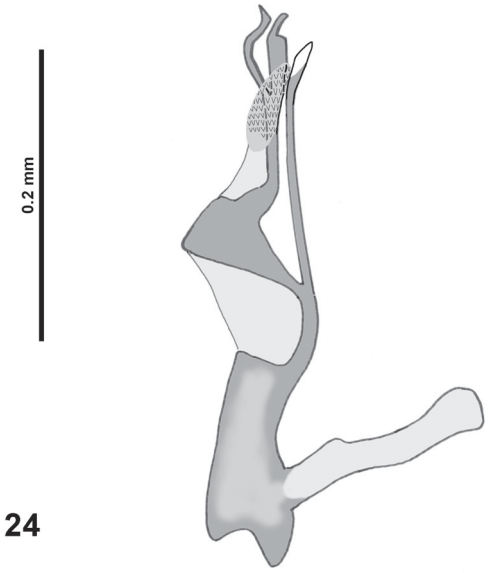


Fig. 24. *Acompomintho lobata* Villeneuve, 1927, syntype male. Aedeagus in lateral view.

apically, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum with one proepisternal seta directed anterodorsally; proepimeron with one strong anterodorsally inclined seta and second (lower and weaker) seta directed anteriorly; postpronotum with 2–3 setae forming slightly curved row, inner setae short, sometimes missing; scutum with 0–1 + 0–1 acrostichal setae, 2 + (2)–3 dorsocentral, 1 posthumeral intra-alar seta, 2 postsutural intra-alar setae, separated by distance greater than distance between first seta and suture; 1 strong presutural supra-alar seta, only 1 postsutural supra-alar seta, first and third undifferentiated; 2 notopleural setae, postalar callus with 2 setae. Two strong katepisternal (sternopleural) setae accompanied by some thin and short setae; with 1 anepimeral (pteropleural) seta; katepimeron (barette) bare; anatergite without small tuft of tiny infrasquamal setulae below lower calypter. Metathoracic spiracle with pair of erect fringes of subequal size. Postmetacoxal area membranous. Scutellum with 2 pairs of strong marginal setae (lateral and apical), basal setae undifferentiated, lateral setae inserted very close to suture, slightly longer than crossed strong apical setae; 1 pair of thin discal scutellar setae.

Wing. Costal spine inconspicuous, slightly shorter than crossvein r-m; costal section between subcostal break and R_1 usually bare ventrally, but sometimes with 1–2 setulae at base; costal section between R_1 and R_{2+3} about 2.1 times as long as costal section between R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 2.0–3.0 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 1 setula dorsally and ventrally, longest as long as costal spine, but thinner; section of M between crossveins r-m and dm-m (dm-cu) 0.5 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forms an almost right angle. Wing cell r_{4+5} distinctly petiolate, petiole 1.4–2.2 times as long as post-angular part of M. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section about 0.6–0.8 of total length of CuA+CuP. Lower calypter tongue-shaped.

Legs. Foreleg. Tibia with 2 small anterodorsal setae, with 1 posterior seta and without posterodorsal seta, preapical anterodorsal seta about as long as preapical dorsal seta, preapical posterodorsal seta not differentiated; first tarsomere basal with weak ventral comb formed by a few longer thin setae; claws about 0.6–0.8 times as long as fifth tarsomere. Mid leg. Femur without posteroventral ctenidium; tibia with 1 anterodorsal seta, 2 posterodorsal setae, 1 ventral seta, and no posterior seta. Hind leg. Tibia with 2 anterodorsal, 2 posterodorsal, 1–2 anteroventral setae, and with 3 dorsal preapical setae; posterior coxal margin bare.

Abdomen. Mid-dorsal depression of syntergite 1+2 confined to anterior 0.5 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with a few lateral marginal and lateral discal setae; tergite 3 without median discal setae and median marginal setae but with lateral marginal setae forming incomplete row, and with lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 is 0.5 times as long as tergite 4. Sternite 4 exposed. Sternite 5 large and convex, longer than wide, posterior margin with deep cleft (about 2/3 of sternite length), lateral lobe large, medial margin of lateral lobe with tooth-like or undulating protuberances (apophysis), usually with two sensilla trichoidea near base.

Terminalia. Epandrium short and convex. Cerci 3/4 as long as surstyli, widened only in basal half, apical part narrow, separated by dorsomedial suture. Surstyli pointed, long and anteriorly curved in lateral view, basally fused with stick-like bacilliform sclerites. Ejaculatory apodeme medium-sized and fan-shaped, 0.55 times as long as aedeagus, its diameter half as wide as length of aedeagus. Pregonite broad, with small hook on top and without setula. Postgonite long, narrow and hook-shaped, with setula. Aedeagus 1.2 times as long as surstylus, straight (Fig. 24). Basiphallus short, epiphallus straight, well developed and weakly sclerotized. Distiphallus connected to basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus long, with small membranous extension, not dorsally inclined, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Female differs from male as follows. Wing veins near tip moderately darkened. Vertex slightly wider, at its narrowest point 1.45–1.55 times as wide as eye in dorsal view, frontal vitta medially narrower than fronto-orbital plate, both sexes with 1–(2) proclinate orbital seta. First flagellomere shorter and narrower, about 2.2–3.0 times as long as pedicel and 3.2–4.0 times as long as wide. Fore leg claws shorter, about 0.3–0.5 times as long as fifth tarsomere.

Biology. Adults have been found from February till December (data from type and non-type material in SDEI and from the literature cited). Hosts unknown.

Distribution. Palaearctic Region – both Koreas; Oriental Region – Taiwan, Japan (Ryukyu Islands) (Villeneuve 1927, Pape & Kurahashi 1994, Draber-Mońko 2007, Kato & Tachi 2016).

Remarks. The species has been described and redescribed several times: Villeneuve (1927: 223), Townsend (1927: 281, as *Wagneriopsis formosensis*), Lopes (1938: 555), Herting (1961: 33), Pape & Kurahashi (1994: 476), Pape (1998: 682), Draber-Mońko (2007: 160), Kato & Tachi (2016: 83). The works of Lopes (1938) and Kato & Tachi (2016) also include illustrations of tergite 5 and the terminalia. However, the distiphallus is partially obscured in the drawings. Pape (1998) shows the complete distiphallus, but bent at an obtuse rather than straight angle. Since Kato & Tachi (2016: 85) write "membranous flag of distiphallus absent" with regard to *Acompomintho lobata* and *A. itoshimensis*, but its presence was postulated as a probable autapomorphy of the group "*Rhinomorinia-Trichogena-Stevenia-Oplisa-Acompomintho-Ventrops*" (Tschorsnig 1985), there was a reason to re-examine the terminalia of *A. lobata* once again. As Figure 24 shows, the distiphallus is straight. The bent figure of Pape (1998) is probably an artifact. In addition, the dorsolateral processes of the distiphallus have a membranous extension that is less pronounced than in the other species but is present. This membrane is also indicated in the drawings of Lopes (1938), Pape (1998), and Kato & Tachi (2016) in *A. lobata*, and is well shown in *A. itoshimensis.*

Acompomintho sinensis (Villeneuve, 1936)

Frauenfeldia sinensis Villeneuve, 1936: 7. Type locality: China, southern Gansu, valley of river Tao He (= Tao-ho), Lu-pa-sze, 2750 m, 11.vii.1930, leg. Hummel (Sjöstedt & Hummel 1933). Holotype: female (not located).

Material examined. 2 ♂♂, Iran, Razavi Khorasan Province, Mashhad city, 36°18'N 059°36'E, approx. 1000 m, 9. –11.vi.1977; labels (white, printed): "NE Iran / Mashhad / 9. –11.6.1977 // Loc no 362 / Exped. Nat. Mus. / Praha" (NMPC); the locality 362 is a garden of an "Agronomical research institute" in Mashhad, with the coordinates "36 18 N, 59 36 E" (see Hoberlandt 1983); 1 ♂, Iran, Kerman Province, Kuhpaye Mtn. Range, Dehmalek 80 km southeast of Kerman, south of Golbaf, elevation 1645 m, 29°50′58″N 057°45′48″E, 15.iv.2015 or 21.iv.2015; labels (white, printed): "Iran, Kerman '64' / Dehmalek, 1645 m / N29 50 58 E57 45 48 / 15 & 21 IV 2015 / leg. Iran Expedition II // R 1.615" [diss.] (ZMHB).

Redescription of male. Overall length: 6.6–8.8 mm (Figs 25–35).

Colouration and microtrichosity. Head black in ground colour, covered all over with grey microtrichosity, including frontal vitta, area between gena and parafacial, parafacial and occiput grey; scape and pedicel dark brown, first flagellomere black in lateral view, but antennae grey in dorsal view; palpus dark brown. Thorax black, covered with grey microtrichosity, without clearly differentiated presutural vittae. Legs black. Wing hyaline, tegula brown, basicosta yellowish brown, not contrasting with light brown proximal part of costa, veins brown; upper and lower calypters ivory white, halter light brown. Abdomen black in ground colour, syntergite 1+2 to tergite 5 each with band of light grey microtrichosity, changing in different directions of view; these bands are dorsal on syntergite 1+2 over entire length of tergite, on tergites 3 and 4 on anterior 2/3–3/4, on tergite 5 on anterior 1/2–3/4; all bands are interrupted medio-dorsally by longitudinal black stripe; sternite and epandrium black.

Head (Fig. 26) in lateral view 0.6–0.7 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.30 times vertical diameter of eye. Face 1.2–1.3 times as long as frons. Vertex at its narrowest point 0.95–1.05 times as wide as eye in dorsal view; frontal vitta medially wider than fronto-orbital plate; medial (inner) vertical setae strong, about 0.6–0.7 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae very small and thin, 0.3 times as long as medial vertical setae or not differentiated from postocular setae; ocellar setae proclinate, similar in size to frontal setae but thinner; postocellar setae more straight (in one specimen not differentiated); frons with 5–7 medially inclined frontal setae descending to level of middle of pedicel, followed by strong latero-reclinate upper orbital seta placed outside of continuous row of frontal setae; without proclinate orbital setae, but with a few scattered fine setulae on fronto-orbital plate. Parafacial with fine black setulae on whole length, more or less continuous from lower fronto-orbital plate, but without strong medioclinate setae on lower half; fronto-orbital plate at level of scape almost 0.6 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.3 times as wide as transverse diameter of eye and 0.9–1.0 times as wide as first flagellomere in profile (1.0–1.1 real). First flagellomere crescentic or sickle-shaped (anterior margin concave), about 3.2–3.7 times as long as pedicel and 2.9–3.0 times as long as wide; arista bare, 1.3–1.4 times as long as first flagellomere, thickened in about basal 0.5 of its length, first aristomere short, 1.5 times as long as wide, second aristomere about 2.5–3.0 times as long as its diameter. Face and lower facial margin barely visible in lateral view; vibrissa well developed, about 0.6–0.7 times as long as height of face, inserted slightly above level of lower facial margin and accompanied by second strong bristle; facial ridge with robust setulae on lower 0.15–0.20 of its length. Occiput with black setulae only behind postocular row. Prementum short and thick, about 2.5–3.5 times as long as wide and about 1.2 times as long as palpus; palpus 0.55–0.65 times as long as first flagellomere, subcylindrical, apically slightly enlarged, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum ventrally with 2–3 anterodorsally directed setae; proepimeron usually with one strong anterodorsally inclined seta and second (lower and weaker) more anteriorly directed seta; postpronotum with 3 setae forming triangle, inner seta being shortest and thinnest; scutum with 0–1 + 0–1 acrostichal, 2 + 3 dorsocentral, 1 posthumeral intra-alar seta, two postsutural intra-alar setae, separated by distance greater than distance between first seta and suture; 1 strong presutural supra-alar seta and 2 supra-alar setae, first undifferentiated, third thin and short; 2 notopleural setae, postalar callus with 2 setae. Three strong katepisternal (sternopleural) setae accompanied by some thinner and shorter setae; one

Figs 25–26. *Acompomintho sinensis* (Villeneuve, 1936), male. 25 – head in lateral view. 26 – habitus in lateral view.

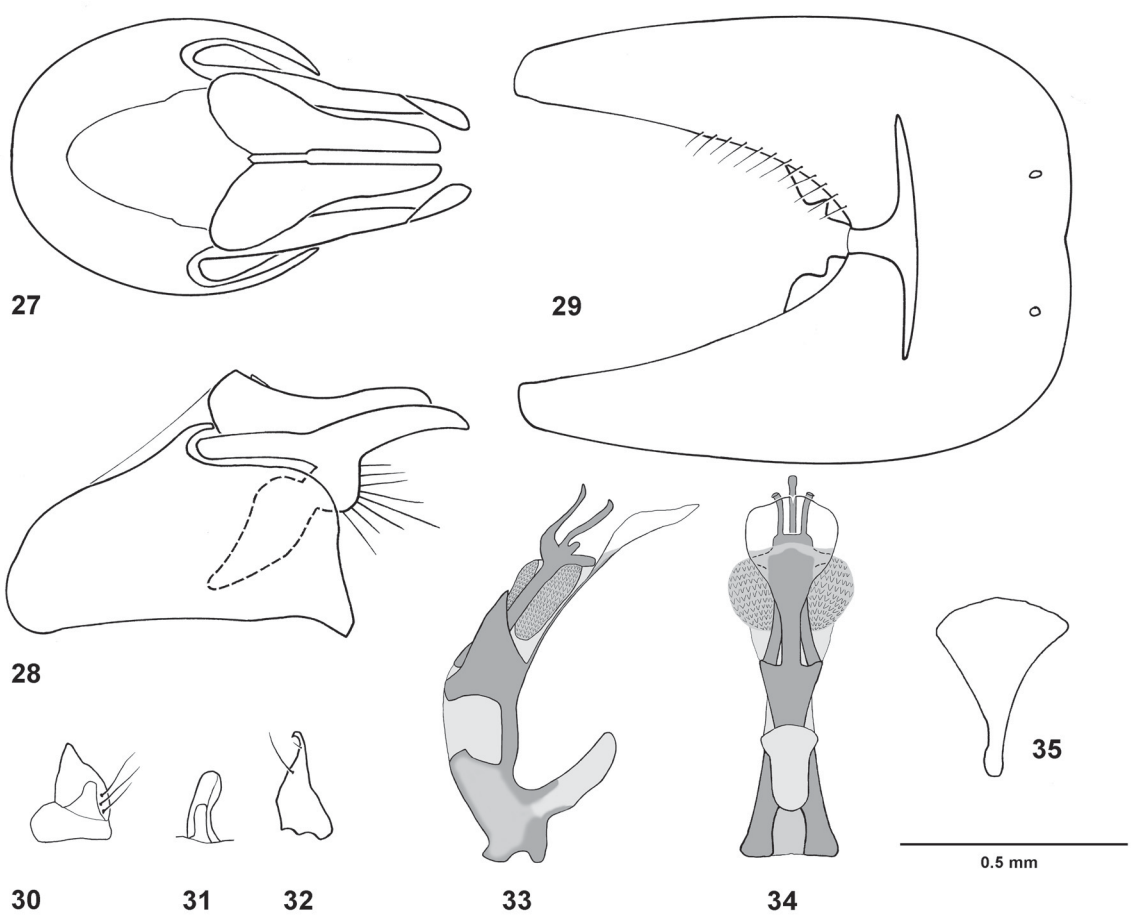
anepimeral (pteropleural) seta; katepimeron (barette) bare; anatergite with small tuft of tiny infrasquamal setulae below lower calypter. Metathoracic spiracle with pair of erect fringes of subequal size. Postmetacoxal area membranous. Scutellum with 3 pairs of marginal setae (basal, lateral and apical), basal setae thinner and shorter, but variably between 0.3–0.7 times as long as lateral setae; lateral setae about as long as crossed strong apical setae; 1 pair of thin discal scutellar setae.

Wing. Costal spine 1.0–1.5 times as long as crossvein r-m; costal section between subcostal break and R_1 ventrally bare; costal section between R_1 and R_{2+3} about 1.8–2.5 times as long as costal section between R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 1.8–2.6 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 1–5 setulae dorsally and ventrally; section of M between crossveins r-m and dm-m (dm-cu) 2.0–2.2 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forms obtuse angle. Wing cell r_{4+5} with short petiole at least as long as diameter of apical vein R_{4+5}, 0.05–0.15 times as long as post-angular portion of M. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section about 0.6–0.8 of total length of CuA+CuP. Lower calypter tongue-shaped.

Legs. Fore leg. Tibia with 3 anterodorsal setae, with 1 posterior and 1 posterodorsal seta, preapical anterodorsal seta about as long as preapical dorsal seta, preapical posterodorsal seta undifferentiated; first tarsomere basal with ventral comb formed by a few long but thin setae; claws about 1.3–1.5 times as long as fifth tarsomere. Mid leg. Femur with posteroventral ctenidium (5–6 stout setae); tibia with 2 anterodorsal setae, 2 posterodorsal setae, and 1 small posterior seta, without anteroventral seta. Hind leg. Tibia with 2–3 anterodorsal, 2 posterodorsal, 2–3 anteroventral setae, and with 3 dorsal preapical setae; posterior coxal margin bare.

Abdomen. Mid-dorsal depression of syntergite 1+2 confined to anterior 0.3–0.4 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with some lateral marginal and lateral discal setae and setulae; tergite 3 without median marginal setae and without median discal setae, with a few lateral marginal and lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 is 0.50–0.65 times as long as tergite 4. Sternite 4 exposed. Sternite 5 (Fig. 29) large and very convex, longer than wide, posterior margin with deep cleft (about 2/3 of sternite length), lateral lobe large, medial margin of lateral lobe with tooth-like or undulating protuberances (apophysis) and with row of setulae, usually with two sensilla trichoidea near base.

Terminalia (Figs 27–35). Epandrium short and convex. Cerci 0.8 times as long as surstyli, widened in basal half, separated by dorsomedial suture. Surstyli pointed, long and slightly curved anteriorly in lateral view, at base with tuft of fine setulae inside; fused with stick-like bacilliform



Figs 27–35. *Acompomintho sinensis* (Villeneuve, 1936), male. Morphological details of sternite 5 and the male terminalia. 27–28 – epandrium, surstyli and cerci in posterior (caudal) view and in lateral view with bacilliform sclerite (dashed line). Setulose area inside the base of surstyli is presented, all other setae and setulae are omitted. 29 – sternite 5 in ventral view. Row of setulae along the medial margin of lateral lobe is presented, all other setae and setulae are omitted. 30–31 – pregonite in lateral and posterior view. 32 – postgonite in lateral view. 33–34 – aedeagus in lateral and dorsal view. 35 – ejaculatory apodeme.

sclerites. Bacilliform sclerites inwardly extended and connected with each other by small bridge. Ejaculatory apodeme moderately sized and fan-shaped, half as long as aedeagus, its diameter 1/3 as wide as aedeagus length. Pregonite broadened, with 2–3 setulae at mid-length, laterally hollowed. Postgonite long, apically narrow and hook-shaped, with setula at mid-length. Aedeagus large, arched, 1.3 times as long as surstylus. Basiphallus very short, epiphallus inclined, well developed and widened, but weakly sclerotized. Distiphallus joining basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus long, with membranous extension inclined dorsally, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Diagnosis of female. It differs from the male as follows (data from Villeneuve 1936): Femora yellowish-red, tibiae partly also yellowish-red, tarsi brown. Frontal vitta medially narrower than fronto-orbital plate; height of gena in profile about 0.40 times vertical diameter of eye; scape and pedicel reddish, first flagellomere brown, about 2.5 times as long as pedicel; palpus yellowish.

Biology. Adults have been found in mountainous areas at altitudes between 1000 and 2000 m in April, June and July. Host unknown.

Distribution. Palaearctic Region – China (southern Gansu) (Villeneuve 1936, Sjöstedt & Hummel 1933), Tajikistan (Gorno-Badakhshan) (Cerretti et al. 2020), Iran (Razavi Khorasan and Kerman Provinces) (new records).

Remarks. It was resurrected as a valid species in the genus *Acompomintho* by Cerretti et al. (2020) who examined two females from Tajikistan, Gorno-Badakhshan, Rushon (NHMD). We were able to study photographs of these females. After examination of three males from Iran, we found that all specimens were in close agreement with the photos and with the description of the species *Frauenfeldia sinensis* Villeneuve, 1936, which was based on a female. Small differences in colouration and bodily proportions (see below under "Females") can be interpreted as usual sexual dimorphism. We therefore assume that the material described below are the previously unknown males of *Acompomintho sinensis* (Villeneuve, 1936).

Genus *Tricogena* Rondani, 1856

Tricogena Rondani, 1856: 88. Type species: *Tricogena truquii* Rondani, 1856 (= *Tachina rubricosa* Meigen, 1824), by original designation.

Tricogenia (incorrect original spelling): Rondani (1856: 225) (*teste* Neave 1950: 276).

Trichogena (incorrect original spelling): Brauer & Bergenstamm (1889: 124), Herting (1961: 20), Tschorsnig (1985: 16).

Thricogena (incorrect original spelling): Neave (1940: 470). Neave incorrectly considered *Thricogena* a spelling of *Tricogena*, whereas it is an unjustified emendation of *Thrychogena* Rondani, 1856 (senior but invalid synonym of *Loewia* Egger, 1856 (Tachinidae), teste O'Hara et al. (2011).

Talmonia Robineau-Desvoidy, 1863: 704. Type species: *Talmonia tibialis* Robineau-Desvoidy, 1863 (= *Tachina rubricosa* Meigen, 1824), by original designation. Synonymised by Herting (1974: 18).

Frauenfeldia Egger, 1865: 297. Type species: *Tachina rubricosa* Meigen, 1824, by monotypy. Synonymised by Herting (1961: 20).

Remarks. The genus *Tricogena* was established by Rondani (1856). He included only one species, *T. truquii* Rondani, 1856 (= *Tachina rubricosa* Meigen, 1824), and most subsequent authors accepted the genus as monotypic. The species described by Villeneuve (1908) as *Frauenfeldia caucasica* and Villeneuve (1936) as *Frauenfeldia sinensis* are resurrected as valid species in the genus *Acompomintho* by Cerretti et al. (2020), which we can accept for the species *A. sinensis* only. *Frauenfeldia caucasica* is now placed in the genus *Tricogena* and redescribed here in both sexes. Because of these changes and additions, it was necessary to redefine the genus *Tricogena*. After this new delimitation of the genus, it became clear that the species *Oplisa grandiloba* Kugler, 1978 fits easily into the genus *Tricogena*, whereas it clearly differs from all *Oplisa* species in its eponymous extremely large lobes of the 5th sternite andrelatively broad and hairy parafacialia as well as shorter frontal bristles.

Overview of treated species of genus *Tricogena* Rondani, 1856.

Tricogena caucasica (Villeneuve, 1908) comb. nov.
Tricogena grandiloba (Kugler, 1978) comb. nov.
Tricogena rubricosa (Meigen, 1824)

Diagnosis and redefinition of the genus. Vertex broad, at its narrowest point 1.00–1.35 times as wide as eye in dorsal view. Lateral (outer) vertical setae differentiated from postocular row. Parafacial with setulae or setae in lower half as well. Height of gena in profile 0.18–0.26 times vertical diameter of eye. Antenna short and stout, but longer than genal height, first flagellomere about 1.0–2.5 times as long as pedicel and 1.2–2.7 times as long as wide, antennal insertion distinctly above middle of eye. Second aristomere not elongated, 1.0–1.3 times as long as wide. First postsutural supra-alar seta absent or very short, distinctly shorter and weaker than notopleural setae. Postpronotum with 3 setae forming triangle. Three katepisternal setae (2+1), anterodorsal seta robust and more than 2/3 as long as posterodorsal katepisternal seta. Scutellum with 3 pairs of marginal setae, basal setae thin and short, lateral and apical setae strong. Anterior and posterior lappets of metathoracic spiracle small, approximately equal in size and standing out from spiracular rim. Wing cell r_{4+5} open, closed at margin or with very short petiole. Vein R_1 bare dorsally. Vein CuA+CuP (CuA_2+ R_1) not reaching wing margin; distal section approximately 0.6 of total length of CuA+CuP. First tarsomere basal with a ventral comb formed by a few long but thin setae. Sternite 5 large and convex, longer than wide, posterior margin with deep cleft, lateral lobe large, medial margin of lateral lobe with or without tooth-like or undulating protuberances (apophysis). Surstyli at base with fine setulae inside; fused with bacilliform sclerites. Ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus with membranous extension, acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Key to species. Until now there was no published identification key to the species of the genus *Tricogena*.

1 Arista plumose, the longest microtrichia half as long as the width of the first flagellomere (Fig. 36); abdominal syntergite 1+2, tergite 3, sternite 2 and 3 mainly intensive yellow (Figs 37, 38); male abdominal sternite 5 apically on each side with a brush of long black setae (Fig. 41). ..... ***T. caucasica*** (Villeneuve, 1908)
– Arista pectinate, the longest microtrichia nearly as long as the width of arista at base (Fig. 47); abdominal syntergite 1+2, tergite 3, sternite 2 and 3 mainly dark brown or orange-brown (Figs 48, 49), male abdominal sternite 5 apically without a comb of setae on each side (Fig. 54). 2
2 Parafacial with scattered thin setae on the whole length including a patch of 4–6 black and strong medioclinate setae on lower half (longest setae 2.5 times as long as the width parafacial at its narrowest point) (Fig. 47); femora black, ventrally with yellowish or orange-brown tip, or mainly yellowish (female, Fig. 49); tibia completely orange; syntergite 1+2 and tergite 3 dark or lateral orange (male, Fig. 48); mid tibia with 1 anterodorsal seta; the section of wing vein M between crossveins r-m and dm-m longer than the section between dm-m and bend of M (Figs 48, 49). ..... ***Tricogena rubricosa*** (Meigen, 1824)
– Parafacial without strong medioclinate setae on lower half; femora and tibia completely brown-black; entire body black including syntergite 1+2 and tergite 3; mid tibia with 2 anterodorsal setae; the section of wing vein M between crossveins r-m and dm-m shorter than the section between dm-m and bend of M. ..... ***Tricogena grandiloba*** (Kugler, 1978)

Tricogena caucasica (Villeneuve, 1908) comb. nov,

Frauenfeldia caucasica Villeneuve, 1908: 287. Type locality: Russia, Krasnodar Krai, Tuapse. Holotype: male (probably destroyed).

Material examined. 1 ♂, "IRAN: Ardabil Province / Valley south of Meshgin Shar / (Kuh. Sabalan) NW of Ardabil / 38°20'49.5''N 047°40'03.2''E / 05.viii.2005, 1.790 m / legit Joachim Ziegler // 0.616" [labels white, printed] (ZMHB); 1 ♀, "IRAN: Ardabil Province / Arbabkandi northeastern of / Meshgin Shahr NW of Ardabil / 38°30'16.8''N 048°01'59.4''E / 16.vii.2008, 1.130 m / legit Joachim Ziegler // 0.794", for DNA extraction left side legs removed; DNA sample number Zi016; 1 ♀, "IRAN: Kordistan Province / Kalechan Village northeastern of / Baneh, SW of Saqqez, Valley / 36°03'22.5''N 045°58'33.1''E / 25.vii.2008, 1.830 m / legit Joachim Ziegler // 0.803" (ZMHB); 1 ♂, "ARMENIA, / Ararat province / 10.vi.2005 / A. C. Pont // Argavand, 8 km SW of /

Yerevan, 800 m / N40°09’260” E044°26’514” // 1.507” [diss.] (JZBG) [all labels white, printed].

Redescription. ***Male.*** Overall length: 5.2–5.6 mm (Figs 36–46).

Colouration and microtrichosity. Head brown to black in ground colour, covered with light yellowish-grey microtrichosity; frontal vitta and area between gena and parafacial brown; scape, pedicel and inner base of first flagellomere yellowish to light brown, remainder of first flagellomere black; palpus brown. Thorax mostly black, scutellum yellow at tip, covered with yellowish-grey microtrichosity; three dark grey presutural vittae, only weakly differentiated, middle vitta narrow. Femora black, ventrally with yellowish or orange-brown tip; tibiae completely yellowish, tarsi black. Wing hyaline, not markedly infuscate; tegula brown, basicosta yellowish, not contrasting with yellowish brown proximal part of costa, veins dark brown; upper and lower calypters ivory white, halter yellowish. Abdomen dark brown to black in ground colour, but syntergite 1+2 and tergite 3 mainly intense yellow; tergites 3 to 5 each with broad band of silvery microtrichosity, all bands largely interrupted medio-dorsally by wide longitudinal black stripe. This black stripe also present on syntergite 1+2 and forming triangle on tergite 3; tergite 5 with narrow reddish brown posterior margin; sternites 1+2 and 3 yellow, sternite 4 brown, sternite 5 reddish brown like epandrium.

Head (Fig. 38) in lateral view 0.66–0.72 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.18–0.23 times vertical diameter of eye. Face 1.00–1.05 times as long as frons. Vertex at its narrowest point 1.02–1.12 times as wide as eye in dorsal view; frontal vitta medially narrower than fronto-orbital plate; medial (inner) vertical setae strong, about 0.7–0.8 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae 0.5 times as long as medial vertical setae; ocellar setae proclinate, shorter than postocellar setae; frons with 4–5 medially inclined frontal setae descending to level of pedicel, followed at distance by strong latero-reclinate upper orbital seta positioned laterally to continuous row of frontal setae; with strong proclinate orbital seta, sometimes followed by second smaller proclinate orbital seta, accompanied by row of fine proclinate setulae on fronto-orbital plate. Parafacial with short and thin setulae on whole length, more or less continuous from fronto-orbital plate, including 0–3 stronger but also short medioclinate setulae on lower half; fronto-orbital plate at level of scape almost 0.3 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.12–0.15 times as wide as transverse diameter of eye and 0.4–0.6 times as wide as first flagellomere in profile (0.7–0.9 real). First flagellomere pilose, about 1.6–2.0 times as long as pedicel and 2.2–2.7 times as long as wide; arista thickened on basal 0.15–0.20 of its length, plumose, longest microtrichia half as long as width of first flagellomere; arista 1.8–1.9 times as long as first flagellomere, first aristomere very short, second aristomere about as long as wide. Lower facial margin not visible in lateral view; vibrissa well developed, about 0.6 times as long as face height, inserted at level of lower facial margin; facial ridge with robust setulae on lower 0.2 of its length. Occiput convex, with black setulae only posterior to postocular row. Prementum about 3.0–3.4 times as long as wide and 1.0–1.1 times as long as palpus; palpus 1.0 times as long as first flagellomere, subcylindrical, slightly enlarged apically, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum usually with one strong dorsally and one weaker anterodorsally inclined seta, but sometimes both proepisternal setae directed dorsally; proepimeron with one strong dorsally inclined seta and second (lower and weaker) anteriorly inclined seta; postpronotum with 3 strong setae forming triangle; inner seta shorter; scutum with 1–2 + 1 acrostichal setae, with 2 + 3 dorsocentral, 1 posthumeral intra-alar seta, 2 postsutural intra-alar setae, separated by distance greater than distance between first seta and suture; 1 strong presutural supra-alar seta; 3 postsutural supra-alar setae, first and last seta shorter and thinner, first also distinctly shorter and weaker than notopleural setae; 2 notopleural setae, postalar callus with 2 setae. Three katepisternal (sternopleural) setae (2+1), anterior seta robust and more than 2/3 as long as posterodorsal katepisternal seta; with 1 anepimeral (pteropleural) seta, often accompanied by 1–2 thinner and shorter setae; katepimeron (barette) bare; anatergite with small tuft of tiny black infrasquamal setulae below lower calypter. Scutellum with 3 pairs of marginal setae (basal, lateral and apical), basal setae thin and short, 0.3 times as long as lateral setae; lateral setae inserted near suture, about as long as crossed strong apical setae; 1 pair of thin discal scutellar setae. Metathoracic spiracle with one pair of erect fringes of subequal size. Postmetacoxal area membranous.

Wing. Costal spine 1.2–1.9 times as long as crossvein r-m; costal section between subcostal break and R_1 usually ventrally bare, but sometimes with 1–2 setulae at base; costal section between R_1 and R_{2+3} about 2.2–2.4 times as long as costal section R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 2.3–2.5 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 2–3 setulae dorsally and ventrally, longest as long as costal spine; section of M between crossveins r-m and dm-m (dm-cu) 0.95–1.05 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forms obtuse angle. Wing cell r_{4+5} open, fifth costal section (cs5) between R_{4+5} and M up to 0.25 times as long as second costal section (cs2), or wing cell closed at margin. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section about 0.6 of total length of CuA+CuP. Lower calypter tongue-shaped.

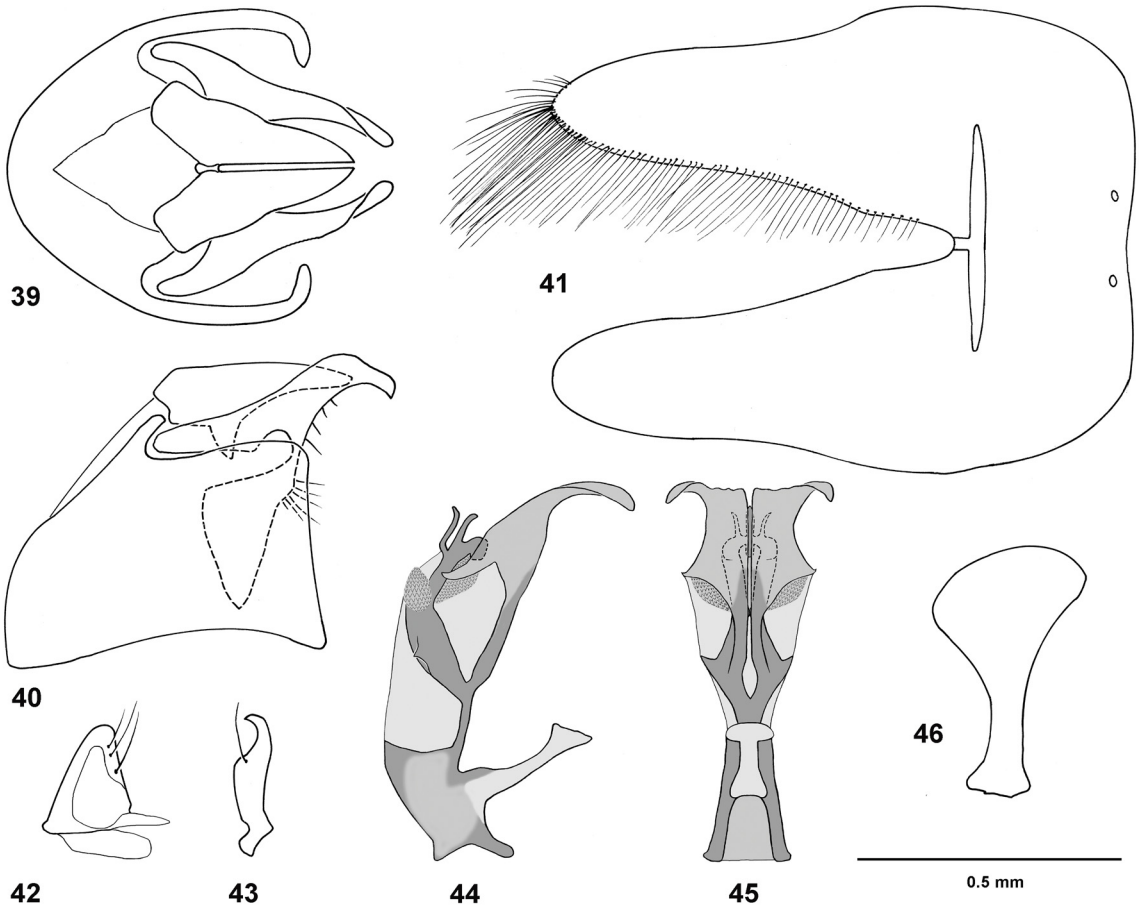
Legs. Fore leg. Tibia with 2 anterodorsal setae, with 1 posterior and without 1 posterodorsal seta, preapical anterodorsal seta about as long as preapical dorsal seta, preapical posterodorsal seta undifferentiated; first tarsomere basal with weak ventral comb formed by a few long but thin setae; claws about 1.8 times as long as fifth tarsomere. Mid leg. Femur without posteroventral ctenidium; tibia with 1 anterodorsal seta, 2 posterodorsal setae, with 1 ventral

Figs 36–38. *Tricogena caucasica* (Villeneuve, 1908) comb. nov. 36 – head in lateral view, male. 37 – habitus in lateral view, male. 38 – habitus in lateral view, female.

seta, and without posterior seta. Hind leg. Tibia with 2 anterodorsal, 2 posterodorsal, 2 anteroventral setae, and with 3 dorsal preapical setae, preapical setae of equal size; posterior coxal margin bare.

Abdomen. Mid-dorsal depression of syntergite 1+2 confined to anterior 0.5 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with a few lateral marginal and lateral discal setae; tergite 3 without median discal setae, with 2 median marginal setae and with a few lateral marginal and lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 is 0.65 times as long as tergite 4. Sternite 4 exposed. Sternite 5 (Fig. 41) large, 1/3 as long as whole abdomen, convex, longer than wide, posterior margin with cleft as deep as two thirds of sternite length, lateral lobe large, medial margin of lateral lobe with row of very long dense setulae, apically very dense and long and forming brush, usually with two sensilla trichoidea near base.

Terminalia (Figs 39–46). Large postabdominal complex composed of epandrium, surstyli, and cerci 0.3 times as long as entire abdomen. Epandrium short and convex. Cerci 0.8 times as long as surstyli, widened in entire length, with dorsomedial suture separating them and with unusual basal extension downwards. Surstyli pointed, long and in lateral view curved down anterior, in dorsal view apically turned inwards, at base with setulae inside; fused with bacilliform sclerites. Bacilliform sclerites inwardly extended and connected with each other by small bridge. Ejaculatory apodeme moderately large and fan-shaped, nearly 0.65 times as long as aedeagus and in diameter 0.35 times as wide as aedeagus length. Pregonite broadened,



Figs 39–46. *Tricogena caucasica* (Villeneuve, 1908) comb. nov., male. Morphological details of sternite 5 and the male terminalia. 39–40 – epandrium, surstyli and cerci in posterior (caudal) view and in lateral view with bacilliform sclerite. Setulose area inside the base of surstyli is presented, all other setae and setulae are omitted. 41 – sternite 5 in ventral view. Row of setulae along the medial margin of lateral lobe is presented, all other setae and setulae are omitted. 42–43 – pregonite and postgonite in lateral view. 44–45 – aedeagus in lateral and dorsal view. 46 – ejaculatory apodeme.

laterally hollowed, with three setulae. Postgonite narrower and hook-shaped, with one setula at mid-length. Aedeagus long and wide, arced, 1.5 times as long as surstylus. Basiphallus short, epiphallus slightly inclined, well developed and widened apically, but weakly sclerotized. Distiphallus joining basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus fanned out apically, almost 0.4 times as wide as length of aedeagus, with membranous extension, inclined dorsally, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Female (Fig. 38). Very similar to the male. Both sexes with 1 proclinate orbital seta; with same vertex width, antenna proportions, and body size. Females differ from males as follows: Face only 0.90–0.95 times as long as frons. Coxae and femora completely yellowish; fore leg claws shorter, about 0.6–0.7 times as long as fifth tarsomere. Tergite 5 triangular.

Biology. Adults were found in summer (June to August) in mountain steppes (Artemisietea), often adjacent to small irrigated fields or meadows with organic farming. The flies moved among herbaceous plants and grasses or visited flowers of *Daucus carota* and *Mentha longifolia*, which grow near small irrigation channels. These observations of the species in arid mountain areas at altitudes ranging from 800 to nearly 2000 m are in contrast to the environmental conditions of the locus typicus in or near Tuapse, which is located in the foothills of the Caucasus Mountains on the coast of the Black Sea and is known for its high humidity and mild winters.

Distribution. Palaearctic Region – southern Russia (Krasnodar Region), Armenia, western Iran.

Remarks. Cerretti et al. (2020) resurrected *Frauenfeldia caucasica* as a valid species in the genus *Acompomintho*. After we were able to examine several specimens (see under "Material examined"), the morphological and genetic results leave no doubt that the species *Frauenfeldia caucasica* must be placed in the genus *Tricogena*. As in the genus *Acompomintho*, the presence or absence of "strong bristly setae in the lower half of the parafacial" cannot be accepted as a generic character in *Tricogena*. Therefore, the genus *Tricogena* has been redescribed above under

"Diagnosis and redefinition of the genus".

Cerretti et al. (2020) wrote: "We have not been able to locate and examine the holotype of *caucasica*". The collector of the holotype is Johann Friedrich Schnabl, also known as Jan Fryderyk Sznabl or Ivan Andrejevich Schnabl. He lived in Warsaw from 1838 to 1912 (Jacobson 1912, Becker 1914). His collection was taken over by the local Museum of Industry and Agriculture (= Muzeum Przemysłu i Rolnictwa) but has not been preserved (Horn et al. 1990). It can be assumed that the holotype and the whole Schnabl collection were destroyed during the World War II. Schnabl travelled a lot, often accompanied by other entomologists. The holotype of *Frauenfeldia caucasica* was apparently collected in the summer of 1903 during a joint trip of Johann Friedrich Schnabl, his son Johann Schnabl, Theodor Becker (Liegnitz), and August Langhoffer (Agram). This journey led along the east coast of the Black Sea via Tuapse to Batumi and from there via Kutaisi to Svaneti and along the Ossetian Military Road to the Mamison Pass in the central High Caucasus (Schnabl 1912).

Tricogena grandiloba (Kugler, 1978) comb. nov.

Oplisa grandiloba Kugler, 1978: 82. Type locality: Israel, Northern district, Ramot Naftali. Holotype: ♂ (TAUI). The illustrations and species description by Kugler (1978) were examined.

Biology. Adult male collected in mid-May. Host unknown.
Distribution. Palaearctic Region – Israel.
Remarks. Treated in the genus *Oplisa* by Kugler (1978: 82) but here confirmed as a valid species and transferred to the genus *Tricogena*. The revised status of this nominal species is based on the recent classification of the species *caucasica* in the genus *Tricogena*. This results in the need for a redefinition of the genus. The new diagnosis of the genus *Tricogena* now allows a completely consistent classification of the species *grandiloba* as a member of this genus.

The species *Tricogena grandiloba* is very similar to *Tricogena rubricosa* (Meigen, 1824). Only a few distinguishing features exist: darker colouration of the entire body without orange-brown areas on the abdomen and legs; parafacials without strong medioclinate setae on the lower half; mid tibia with 2 anterodorsal setae; the section of wing vein M between crossveins r-m and dm-m shorter than the section between dm-m and bend of M.

Tricogena rubricosa (Meigen, 1824)

Tachina rubricosa Meigen, 1824: 305. Type locality: not given, probably Germany. Type(s): ♂ (MNHN).
Tachina trilineata Meigen, 1824: 281. Type locality: not given, northern Germany. Type(s): ♀ (MNHN). Synonymised by Stein (1900: 150).
Tachina barbata Meigen, 1830: 371. Type locality: Germany, Stolberg. Type(s): ♀ (MNHN). Synonymised by Stein (1900: 132).
Tachina genibarbis Meigen, 1830: 372. Type locality: Germany, Berlin. Type(s): ♂, not located (possibly lost). Synonymised by Stein (1924: 184).
Tachina hirticornis Zetterstedt, 1844: 1172. Type locality: Sweden, Öland and Gotland and Östergötland, Gusum and Bohuslän, Marstrand. Syntypes: ♂♂ (MZLU). Synonymised by Ringdahl (1945: 28).
Tachina nigritarsis Zetterstedt, 1844: 1169. Type locality: Sweden, Skåne, Esperöd and Skåne, Mellby and Östergötland, Vadstena and Öland. Syntypes: ♀♀ (MZLU). Synonymised by Ringdahl (1945: 28).
Tachina tarsalis: Zetterstedt (1844: 1170). Unavailable name (*nomen nudum* ascribed to Boheman).
Dexia tachiniformis Zetterstedt, 1844: 1280. Type locality: Sweden, Öland. Holotype: ♂ (MZLU). Synonymised by Ringdahl (1945: 31).
Tricogena truquii Rondani, 1856: 88. Type locality: Italy, Piemonte alps ["in Pedemontii alpibus"]. Holotype: ♂ (MZFI). Synonymised by Herting (1961: 20).
Talmonia tibialis Robineau-Desvoidy, 1863: 705. Type locality: France, near Paris. Holotype: ♂ (MNHN). Synonymised by Herting (1974: 18).
Frauenfeldia monticola: Brauer & Bergenstamm (1891: 413). Unavailable name (*nomen nudum*, as "*monticola* Schum. litt.").
Tricogena lumbricosa (incorrect subsequent spelling of *Tricogena rubricosa* (Meigen, 1824): Verves (2012: 31).

Material examined. 1 ♂, "Germany, Hesse, Neumorschen near Melsungen, Halberg, 210 m, 51°03'46''N, 009°36'07''E, 16.vi.2007, leg. C. Lange & J. Ziegler // 0.710", for DNA extraction two legs on the left side removed; DNA sample number Zi086; 1 ♂, "Germany, Saxony-Anhalt, Thale (Harz) near Halberstadt, Weinberg, 180 m, 51°45'38''N, 011°02'32''E, 04.viii.2020, leg. C. Lange & J. Ziegler // R 1.491" [diss.]. Additional 14 ♂♂ 3 ♀♀, France (Hautes-Alpes), Germany (Brandenburg, Hesse, Saxony-Anhalt), Italy (Trentino-Alto Adige), Switzerland (Valais) (all pinned, JZBG), 27 ♂♂ 3 ♀♀, Italy (Trentino-Alto Adige) (leg. Ziegler in alc. ZMHB), and 11 ♂♂ 1 ♀, Germany, Bavaria, Baden-Württemberg (leg. Doczkal in alc. ZSMC).

Redescription. ***Male.*** Overall length: 4.7–6.0 mm (Figs 47–59).

Colouration and microtrichosity. Head brown to black in ground colour, covered with light yellowish-grey microtrichosity; frontal vitta and area between gena and parafacial brown; scape and pedicel light to dark brown, first flagellomere black; palpus yellowish to brown. Thorax mostly black, scutellum orange-brown at tip, covered with grey or yellowish-grey microtrichosity; three black presutural vittae, middle vitta narrow. Femora black, ventrally with yellowish or orange-brown tip; tibiae completely orange, tarsi black. Wing hyaline, not markedly infuscate; tegula brown, basicosta yellowish, only slightly contrasting with yellowish brown proximal part of costa, veins dark brown; upper and lower calypters ivory white, halter yellowish. Abdomen dark brown to black in ground colour, but syntergite 1+2 and tergite 3 lateral orange; syntergite 1+2 dorsal with silvery spot on each side and tergites 3 to 5 each with broad band of silvery microtrichosity, all bands are largely interrupted medio-dorsally by longitudinal parallel edged black stripe; tergite 5 with narrow brown posterior margin; sternites dark brown; terminalia dark to orange brown.

Head (Fig. 47). In lateral view 0.69–0.80 times as long as high. Compound eye bare. Genal dilation well developed, height of gena in profile 0.18–0.26 times vertical diameter of eye. Face 1.00–1.06 times as long as frons. Vertex at its narrowest point 1.08–1.32 times as wide as eye in dorsal view; frontal vitta medially about as wide as fronto-orbital plate; medial (inner) vertical setae strong, about 0.7–0.8 times as long as vertical diameter of eye, reclinate, sub-parallel to each other; lateral (outer) vertical setae 0.5 times as long as medial vertical setae; ocellar setae latero-proclinate, longer than postocellar setae; frons with 5 medially inclined frontal setae descending to level of pedicel, followed at distance by strong latero-reclinate upper orbital seta positioned laterally to continuous row of frontal setae; with strong proclinate orbital seta, some-

Figs 47–49. *Tricogena rubricosa* (Meigen, 1824). 47 – head in lateral view, male. 48 – habitus in lateral view, male. 49 – habitus in lateral view, female.

times followed by second smaller proclinate orbital seta, accompanied by fine proclinate setulae on fronto-orbital plate. Parafacial with short and thin setulae on whole length more or less continuous from fronto-orbital plate, including 4–7 long and strong medioclinate setae on lower half; fronto-orbital plate at level of scape almost 0.31–0.33 times as wide as transverse diameter of eye in profile; parafacial at its narrowest point 0.14–0.20 times as wide as transverse diameter of eye and 0.40–0.45 times as wide as first flagellomere in profile (0.45–0.50 real). First flagellomere pilose, about 1.8–2.1 times as long as pedicel and 1.5–2.0 times as long as wide; thickened in basal 0.2–0.3 of its length, short plumose, longest microtrichia about as long as width of arista at base; arista 1.7–2.0 times as long as first flagellomere, first aristomere very short, second aristomere 1.0–1.3 times as long as wide. Lower facial margin not visible in lateral view; vibrissa well developed, about 0.6–0.8 times as long as face height, inserted at level of lower facial margin; facial ridge with only a few robust setae on lowest 0.1 of its length. Occiput convex, with black setulae only posterior to postocular row. Prementum about 2.5–2.9 times as long as wide and 1.0–1.1 times as long as palpus; palpus 1.0–1.2 times as long as first flagellomere, subcylindrical, enlarged apically, with a few setulae ventrally, dorsally and apically.

Thorax. Prosternum bare; proepisternum with 2 dorsally directed setae; proepimeron with one strong dorsally inclined seta and second (lower and weaker) anteriorly inclined seta; postpronotum with 3 strong setae forming triangle; scutum with 1–2 + 0–1 acrostichal setae, with 2 + 3 dorsocentral, 1 posthumeral intra-alar seta, 2 postsutural intra-alar setae, separated by distance greater

Figs 50–51. *Tricogena rubricosa* (Meigen, 1824) female sitting on a leaf. Bernau bei Berlin (Germany), 13.vii.2016.

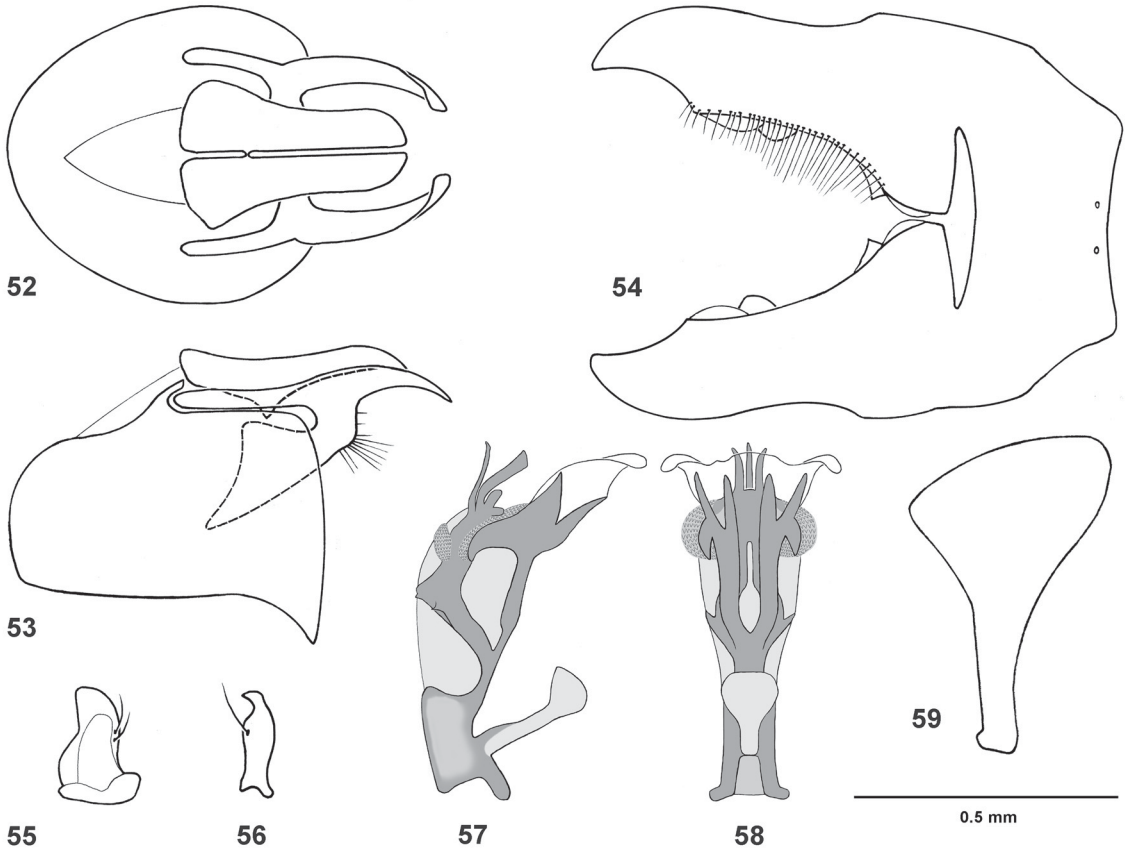
than distance between first seta and suture; 1 strong presutural supra-alar seta; 3 postsutural supra-alar setae, first and last seta shorter and thinner, first also distinctly shorter and weaker than notopleural setae; 2 notopleural setae, postalar callus with 2 setae. Three katepisternal (sternopleural) setae (2+1), anterior seta robust and more than 2/3 as long as posterodorsal katepisternal seta; with 1 anepimeral (pteropleural) seta in brush of thinner and shorter setae; katepimeron (barette) bare; anatergite with small tuft of tiny black infrasquamal setulae below lower calypter. Scutellum with 3 pairs of marginal setae (basal, lateral and apical), basal setae thin and short, about 0.2–0.3 times as long as lateral setae; lateral setae inserted near suture, about as long as crossed strong apical setae, 1 pair of discal scutellar setae. Metathoracic spiracle with one pair of erect fringes of subequal size. Postmetacoxal area membranous.

Wing. Costal vein with conspicuously strong thorn-like setae; costal spine 1.3–2.0 times as long as crossvein r-m; costal section between subcostal break and R_1 usually ventrally bare, but sometimes with 1–2 setulae at base; costal section between R_1 and R_{2+3} about 1.9–2.2 times as long as costal section R_{2+3} and R_{4+5}; costal section between R_{2+3} and R_{4+5} 2.0–3.0 times as long as costal section between subcostal break and R_1. Vein R_1 bare dorsally; base of vein R_{4+5} with 1–2 setulae dorsally and ventrally, longer as long as costal spine; section of M between crossveins r-m and dm-m (dm-cu) 1.05–1.35 times as long as section between dm-m (dm-cu) and bend of M. Bend of M forms obtuse angle. Wing cell r_{4+5} narrowly open, closed at margin or with very short petiole. Vein CuA+CuP (CuA_2+A_1) not reaching wing margin; distal section about 0.6 of total length of CuA+CuP. Lower calypter tongue-shaped.

Legs. Foreleg. Tibia with 2 anterodorsal setae, with 1 posterior and without 1 posterodorsal seta, preapical anterodorsal seta only slightly shorter than preapical dorsal seta, preapical posterodorsal seta undifferentiated; ventral comb on basal first tarsomere less developed; claws about 1.0 times as long as fifth tarsomere (mostly broken off). Mid leg. Femur without posteroventral ctenidium; tibia with 1 anterodorsal seta, 2 posterodorsal setae, with 1 ventral seta, and without posterior seta. Hind leg. Tibia with 2 anterodorsal, 2 posterodorsal, 2 anteroventral setae, and with 3 dorsal preapical setae, preapical setae similar in size; posterior coxal margin bare.

Abdomen. Mid-dorsal depression of syntergite 1+2 confined to anterior 0.5 of syntergite length, syntergite 1+2 without median marginal setae and median discal setae, with a few lateral marginal and lateral discal setae; tergite 3 without median discal setae, with 2–4 median marginal setae and with a few lateral marginal and lateral discal setae; tergites 4 and 5 each with row of marginal setae but without discal setae; tergite 5 is 0.7–0.8 times as long as tergite 4. Sternite 4 exposed. Sternite 5 (Fig. 54) large, 1/3 as long as whole abdomen, very convex, longer than wide, posterior margin with cleft slightly deeper than half of sternite length, lateral lobe large, medial margin of lateral lobe with tooth-like and undulating protuberances (apophysis) and row of dense setulae, usually with two sensilla trichoidea near base.

Terminalia (Figs 52–59). Postabdominal complex built from epandrium, surstyli and cerci 0.3 times as long as whole abdomen. Epandrium short and convex. Cerci 0.8 times as long as surstyli, widened in entire length, apical part about 0.6 times as wide as basal part, with dorsomedial suture separating them and with small basal extension downwards. Surstyli pointed, long and in lateral view curved, in dorsal view apically turned inwards, at base with tuft of setulae inside; fused with bacilliform sclerites. Bacilliform sclerites inwardly extended and connected with each other by small bridge. Ejaculatory apodeme moderately large and fan-shaped, nearly 0.75 times as long as aedeagus, measured in diameter 0.5 times as wide as aedeagus length. Pregonite broadened, laterally hollowed, with two setulae at mid-length. Postgonite narrower and hook-shaped, with one setula at mid-length. Aedeagus long and wide, 1.3 times as long as surstylus. Basiphallus short, epiphallus slightly inclined, well developed and widened apically, but very weakly sclerotized. Distiphallus joining basiphallus by dorsal sclerite and by ventro-lateral membrane, ventral plate of distiphallus connected with median process, dorsolateral processes of distiphallus



Figs 52–59. *Tricogena rubricosa* (Meigen, 1824), male. Morphological details of sternite 5 and the male terminalia. 52–53 – epandrium, surstyli and cerci in posterior (caudal) view and in lateral view with bacilliform sclerite. Setulose area inside the base of surstyli is presented, all other setae and setulae are omitted. 54 – sternite 5 in ventral view. Row of setulae along the medial margin of lateral lobe is presented, all other setae and setulae are omitted. 55–56 – pregonite and postgonite in lateral view. 57–58 – aedeagus in lateral and dorsal view. 59 – ejaculatory apodeme.

fanned out apically, nearly 0.35 times as wide as length of aedeagus, with membranous extension, inclined dorsally, lateroventral surface sclerotized and covered with scale-like spinules. Acrophallus with tripartite sperm duct, two ventral parts connected by additional sclerite.

Female (Figs 49–51) very similar to the male. Both sexes with 1 proclinate orbital seta; with same vertex width, antenna proportions, and body size. Females differ from males as follows: mid and hind femora predominantely orange-brown; fore leg claws shorter, about 0.5 times as long as fifth tarsomere. Tergite 5 triangular.

Biology. In Central Europe the species is usually found only sporadically. Adults are mainly active in summer. The entire flight period extends in 1–2 overlapping generations from May to September (Wijnhoven & Zeegers 1999; own observations). The flies are flower visitors, preferably on umbellifers. The known larval host is *Porcellio scaber* Latreille, 1804 (Thompson 1934).

Distribution. Palaearctic Region – Europe from Northwest Russia in the East to Spain and Portugal in the West, from Ireland, England and entire Scandinavia in the North to Italy and Ukraine in the South. Also known from Northern Africa (Tunisia, Morocco) (after Cerretti et al. 2020: 104).

Remarks and additions to the "Key to world genera of Rhinophoridae" of Cerretti et al. (2020)

Since the species described by Villeneuve (1908, 1936) under the names *Frauenfeldia caucasica* and *Frauenfeldia sinensis* could not be previously assigned to any of the accepted genera, the older identification keys consider only the species *A. lobata* from the genus *Acompomintho* and only the species *T. rubricosa* from the genus *Tricogena* (Herting 1961, Pape 1998). The identification key of Peris & González-Mora (2007) also includes only *A. lobata* under *Acompomintho*, while *Frauenfeldia caucasica* and *F. sinensis* are classified under *Tricogena* with the wrong characterization "Setas parafaciales situadas hacia la mitad inferior (más largas las de abajo) …". A current identification key to all known genera of the Rhinophorinae was published by Cerretti et al. (2020). However, after their re-definition, it is not possible to identify the genera *Acompomintho* and *Tricogena* using this key. In order to be able to use the key, two insertions are proposed starting in step 30.

Insertion 1

30 Using the alternative "Facial profile receding" step 31 would follow.

31 Using the alternative "Cell r_{4+5} long petiolate" step 32 would follow. Replace Step 32 with 32A and 32B as follows:

32A Parafacial with a row of long robust setae. Male: arista not bottle-brush like. Female: wing without whitish posterior subapical spot. 32B

– Parafacial with fine setulae at most on upper half. Male: arista bare, plumose or bottlebrush-like. Female: whitish posterior subapical spot on wing membrane absent or present. 33

32B Antenna distinctly shorter than eye height. Second aristomere not elongated. .... ***Ventrops*** Crosskey (in part) [*V. stuckenbergi*]

– Antenna at least as long as eye height. Second aristomere elongated, 2–3 times as long as wide. ... . ***Acompomintho*** Villeneuve (in part) [*A. itoshimensis, A. lobata*]

Insertion 2

30 Using the alternative "Facial profile not receding" step 41 would follow.

41 Using the alternative "Distal section of CuA+CuP approx. 3/4 of total length of CuA+CuP. Anterior katepisternal seta robust and more than 2/3 as long as posterodorsal katepisternal seta" step 43 would follow.

43 Using the alternative "Setae never present on lunule, notopleuron and katepimeron simultaneously. Median process of ventral sclerotisation of distiphallus not interrupted, running from ventral plate to tip of phallus step 44 would follow. Replace Step 44 with 44A and 44B and Step 45 with 45A and 45B as follows:

44A Antenna long and slender, first flagellomere about 3.2–4.8 times as long as pedicel and 2.9–4.5 times as long as wide. Second aristomere elongated, 2–3 times as long as wide. .... ***Acompomintho*** Villeneuve (in part) [*A. carmanica, A. gavryushini, A. sinensis*]

– Antenna short and stout, first flagellomere about 1.0–2.5 times as long as pedicel and 1.2–2.7 times as long as wide. Second aristomere not elongated. 44B

44B Postpronotum with three setae arranged in right-angled triangle or nearly so; if with two setae [*Stevenia gilasiani*], then parafacial with strong setae in lower half. 45A

– Postpronotum with three setae arranged in a line or in a shallow triangle; if with only two setae, then parafacial bare. 47

45A Cell r_{4+5} usually long petiolate, the shortest petiole as long as crossvein r-m [*Stevenia acutangula*]. Parafacial with strong bristly setae in lower half. Mid tibia with at least 2 anterodorsal setae. .... ***Stevenia*** Robineau-Desvoidy

– Cell r_{4+5} narrowly open, closed at wing margin or very short-petiolate (petiole, when present, shorter than crossvein r-m). Parafacial bare or with hair-like setulae or with strong setae [*Tricogena rubricosa*]. Mid tibia usually with 1, rarely with 2 anterodorsal setae. 45B

45B Parafacial bare or with hair-like setulae in upper half only, at its narrowest point 0.04–0.10 times as wide as transverse diameter of eye. Fronto-orbital plate at level of middle of scape, when seen in profile, 0.13–0.20 times as wide as transverse diameter of eye. Claws in both sexes shorter than fifth tarsomere. Lobes of male sternite 5 large, but not extending distally to the posterior edge of the 5th tergite. ..... ***Oplisa*** Rondani [*O. hertingi, O. japonica, O. nudiseta, O. oldenbergi, O. pollinosa, O. tergestina*]

– Parafacial with setulae or setae also in lower half, at its narrowest point 0.12–0.20 times as wide as transverse diameter of eye. Fronto-orbital plate at level of middle of scape, viewed in profile, 0.28–0.33 times as wide as transverse diameter of the eye. Foreleg claws in males at least as long as fifth tarsomere. Lobes of male sternite 5 very large, extend distally at the level of the posterior edge of the 5th tergite or even behind it. ... ***Tricogena*** Rondani [*T. caucasica, T. grandiloba, T. rubricosa*]

Phylogenetic relationships

The phylogenetic relationships within the subfamily Rhinophorinae were reconstructed using five mitochondrial and two nuclear gene markers. The resulting phylogeny is based on the BI and RAxML analyses of the presented dataset (Fig. 60). The Rhinophorinae appear in our analysis as a monophyletic group with strong support (98/100), as do the two tribes Phytonini (87/100) and Rhinophorini (99/100).

Our studies focused on investigating the phylogenetic position and morphological definition of the genera *Acompomintho* and *Tricogena* within the Palaearctic genera. For this purpose, molecular data of the genera *Acompomintho, Azaisia, Tricogena*, and *Tromodesia* were obtained here for the first time. All investigated non-monotypic genera with more than one included species (*Acompomintho*, *Phyto*, *Tromodesia*, *Paykullia*, *Oplisa*, *Tricogena*, and *Stevenia*), proved to be monophyletic with strong support.

While the genera *Melanophora*, *Paykullia*, *Phyto*, and *Tromodesia* branched out as Phytonini, the genera in question, *Acompomintho* and *Tricogena*, clustered together with the genera *Azaisia*, *Oplisa*, *Rhinomorinia*, and *Stevenia* in the subgroup Rhinophorini. These latter six genera, distributed in the Palaearctic, received strong support (99/100) and formed a very well founded monophylum both genetically and morphologically as this group shares the following morphological synapomorphies as ground-plan characters: 1) acrophallus with tripartite sperm duct, and 2) dorsal sclerite of distiphallus distally with membranous extension (flag).

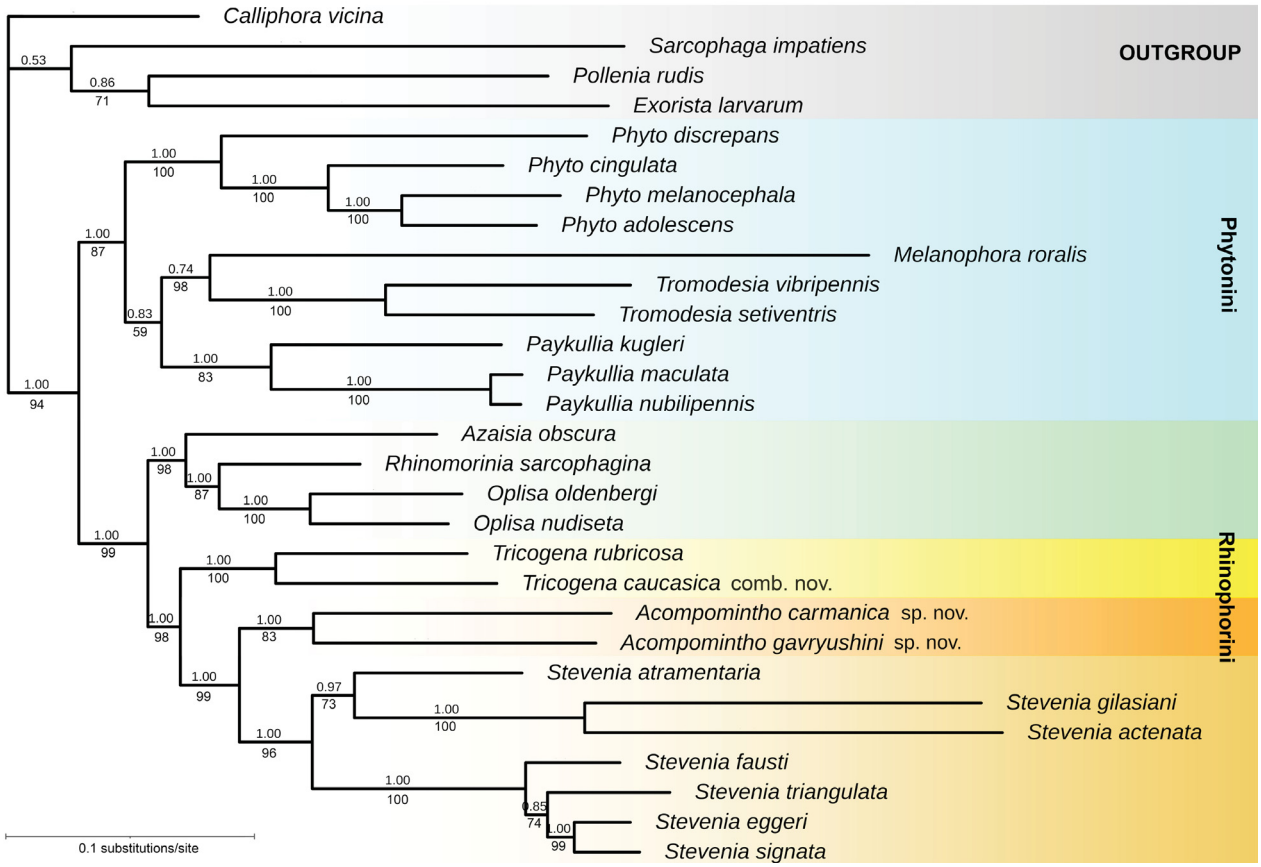
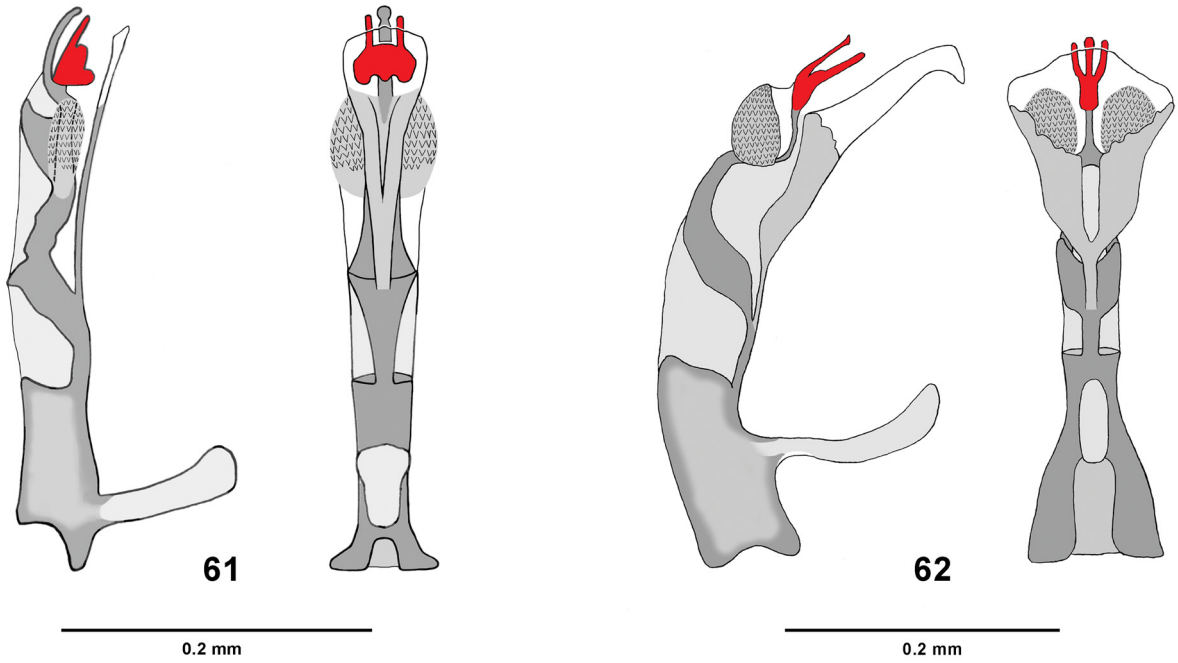


Fig. 60. Bayesian topology with implemented ML values for relationships of the studied taxa of Rhinophorinae based on DNA sequence data (12S, 16S, COI, COII, CytB, ITS2 and 28S) representing 4787 characters. Support numbers above clades refer to posterior probability over 0.95 and below clades to ML bootstrap values over 50.

Tschorsnig (1985: 16) has already demonstrated these features for the mentioned genera (except *Azaisia* but including the non-Palaearctic genus *Ventrops* Crosskey, 1977). Now we can confirm the mentioned synapomorphies also for *Azaisia*. Tschorsnig (1985) added a further character: surstyli fused with (stick-like or broad) bacilliform sclerites. But Cerretti et al. (2020) show that this is a synapomorphy of the whole Rhinophorini.

As our investigations show, all species of the genera *Acompomintho* and *Tricogena* have in the male terminalia another interesting feature on the acrophallus: the two ventral parts of the tripartite sperm duct are connected by an additional sclerite (Fig. 61). This is possibly another ground-plan character of the monophylum, as such a sclerite also occurs in the genus *Rhinomorinia* (see Tschorsnig 1985: 14), and Pape (1986: 29) writes about this group: "dorsal acrophallic sclerite well-developed, with two lateral arms … however, not found in *Metoplisa*, most *Oplisa* and most *Stevenia*." We have found that indeed, all *Stevenia* species lack this additional sclerite. In these species the three acrophallic sclerites are directly connected to each other (Fig. 62), whereby the specific shape of this connection varies greatly.

The genetic results confirm monophyly of all included genera with strong support. *Acompomintho* is the sister group of *Stevenia*, and the sister group of these two is *Tricogena*. The genera *Azaisia*, *Oplisa,* and *Rhinomorinia* form the closest sister-group of this monophylum. The results also confirmed the validity of the newly described species of the genus *Acompomintho* and the redescribed *Tricogena caucasica* comb. nov. In our taxonomic and descriptive part of the work, we focus entirely on these two genera. *Acompomintho carmanica* sp. nov. from Iran and *A. gavryushini* sp. nov. from Kazakhstan are described, illustrated and compared with the other known species of the genus. The male of *Acompomintho sinensis* (Villeneuve, 1936) is described and illustrated for the first time and *A. lobata* Villeneuve, 1927 is re-described. A key to species of *Acanthomintho* is given and the delimitation of this genus is redefined. The following new combinations are proposed: *Tricogena caucasica* (Villeneuve, 1908) comb. nov. [transferred from *Acompomintho*] and *Tricogena grandiloba* (Kugler, 1978) comb. nov. [transferred from *Oplisa*]. *Tricogena caucasica* and *Tricogena rubricosa* (Meigen, 1824) are redescribed and illustrated. A key to species of *Tricogena* is given and the delimitation of this genus is redefined. Additions to the key to the world genera of Rhinophorinae of Cerretti et al. (2020) are given, which allows the identification of the redefined genera *Acompomintho* and *Tricogena*.



Figs 61–62. Aedeagus in lateral and dorsal view. 61 – *Acompomintho gavryushini* sp. nov. with a characteristic additional sclerite connecting the two ventral parts of the tripartite sperm duct (in red). 62 – *Stevenia hirtigena* Herting, 1961 without such an additional sclerite, all three acrophallic sclerites are directly connected to each other (in red).

Discussion

The dichotomy of the Rhinophorinae was already known from the study of the preimaginal stages by Bedding (1973) and was first phylogenetically substantiated in detail by Pape (1986) but the number of taxa included at that time was limited. However, even in our first investigations based on molecular data we were able to confirm that the Rhinophorinae split into two large branches (Ziegler & Tóthová 2014, 2019). The new studies by Cerretti et al. (2019, 2020) and Gisondi et al. (2023) also confirm this division into the Rhinophorini and Phytonini, including a large number of currently known taxa. However, the assignment of the taxa to the two clades partially differs depending on the methodology used.

Species of the genera *Acompomintho*, *Azaisia*, *Tricogena*, and *Tromodesi*a were genetically analysed for the first time (cf. Gisondi et al. 2023). *Tromodesia* appears in our analyses in the tribe Phytonini, not in Rhinophorini. This contradicts the phylogeny of Cerretti et al. (2020) and also does not agree with the assignment to the Rhinophorini in the list of Gisondi et al. (2023). According to the results of Gisondi et al. (2023), the monotypic genera *Macrotarsina* Schiner, 1857 and *Rhinophora* Robineau-Desvoidy, 1830 probably also belong to the genera of the Rhinophorini distributed in the Palaearctic, and Cerretti et al. (2020) also included these genera here.

The genera in question, *Acompomintho* and *Tricogena*, emerge together with the genera *Azaisia*, *Oplisa*, *Rhinomorinia,* and *Stevenia* in the subgroup Rhinophorini. These latter six genera, distributed in the Palaearctic, received strong support (99/100) and form a very well founded monophylum both genetically and morphologically. The genera included in this group largely correspond to the presentation in Cerretti et al. (2020). However, the sister group relationships are clearly different, which is mainly reflected in the fact that *Acompomintho* rather than the genus *Azaisia* occupies a basal position. This is probably due to the inaccurate statement by Kato & Tachi (2016) on the genus *Acompomintho* – "membranous flag of distiphallus absent". Gisondi et al (2023) considered only *Oplisa*, *Rhinomorinia*, and *Stevenia* from the monophylum of six genera in their analysis. As previously stated (Ziegler & Tóthová 2014), *Acompomintho* is the sister group of *Stevenia*, and the sister-group of these two is *Tricogena* (Fig. 60).

The characteristics of the male terminalia cited by Kato & Tachi (2016), which were used to define the genus *Acompomintho*, are not suitable for this purpose. They correspond to the synapomorphies for the genera *Acompomintho, Azaisia*, *Oplisa*, *Rhinomorinia*, *Stevenia*, and *Tricogena* (see Tschorsnig 1985): acrophallus with tripartite sperm duct and dorsal sclerite of distiphallus distally with membranous extension (flag present, not absent like described). The further three mentioned features are the characteristics of larger units (see Cerretti et al. 2020) and not limited to *Acompomintho*: surstyli fused with bacilliform sclerites, pregonite fused with intermedium, and ventral plate of distiphallus connected with median process. The morphological delimitation of the genera *Acompomintho* and *Tricogena* is redefined in this paper.

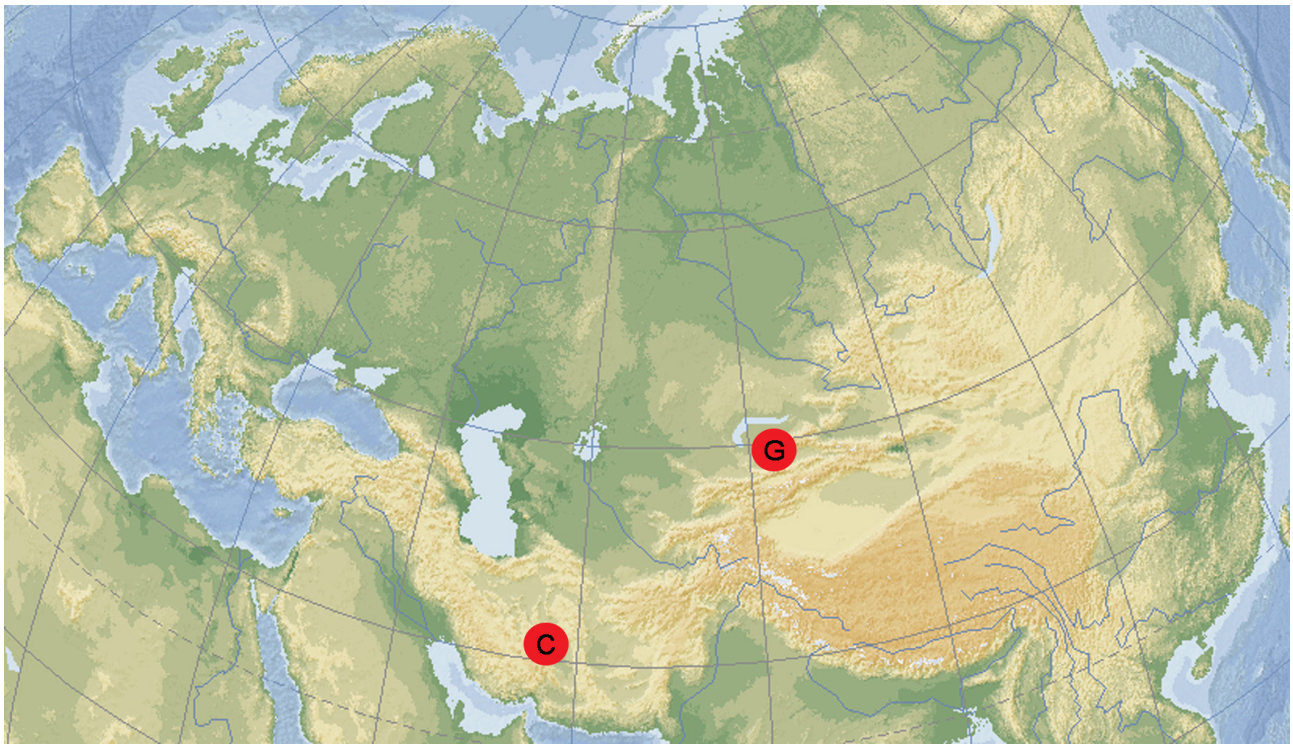


Fig. 63. Map with the loci typici of *Acompomintho carmanica* Ziegler sp. nov., marked with "C", and *Acompomintho gavryushini* Ziegler sp. nov., marked with "G".

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