*Russian Entomol. J. 15(2):*189–195

Taxonomic review of the genus *Holcogaster* Fieber, 1860 (Heteroptera: Pentatomidae) with the description of the male and female genitalia

Таксономический обзор рода *Holcogaster* Fieber, 1860 (Heteroptera: Pentatomidae) с описанием строения гениталий самцов и самок

J. Ribes[1] & D. Gapon[2]
Ж. Рибес[1], Д. Гапон[2]

[1] València, 123-125, ent., 3a; E-08011 Barcelona, Catalonia, Spain; e-mail: 4354jrr@comb.es
[1] Валенсия, 123-125, энт., 3а; E-08011 Барселона, Каталония, Испания.
[2] Zoological Institute of Russian Academy of Sciences, Universitetskaya nab. 1, St. Petersburg 199034, Russia. e-mail: Tentat@yandex.ru
[2] Зоологический институт Российской Академии наук, Университетская наб., 1, Санкт-Петербург 199034, Россия.

KEY WORDS. completely inflated aedeagi, Heteroptera, *Holcogaster*, lectotypes, male and female genitalia, new synonyms, Pentatomidae.

КЛЮЧЕВЫЕ СЛОВА: Heteroptera, *Holcogaster*, Pentatomidae, гениталии самцов и самок, лектотипы, новые синонимы, полностью раздутые эдеагусы.

ABSTRACT. *Holcogaster exilis* Horváth, *H. weberi* Wagner and *H. longicornis* Wagner are synonymized with *Holcogaster fibulata* (Germar). Lectotypes for *Holcogaster exilis* are designated. The structure of the male and female genitalia is described. The variability of genitalia among specimens from different geographical areas is discussed.

РЕЗЮМЕ. В статье установлены новые синонимы для *Holcogaster fibulata* (Germ.): *Holcogaster exilis* Horvαth, *H. weberi* Wagn. и *H. longicornis* Wagn. Обозначены лектотипы для *Holcogaster exilis* Horváth. Описано строение гениталий самцов и самок рода, рассмотрено таксономическое значение различий в строении экземпляров из разных частей ареала.

This paper is based on material from the collections of the Zoological Museum of Barcelona (MZBS), the Hungarian National History Museum, Budapest (HNHM), the Zoological Institute of Russian Academy of Sciences, St. Petersburg (ZISP), and also the collections of A. Carapezza, H. Günther, A. Matocq, M. Morales, and J. Ribes. The aedeagi are described in completely inflated state. For the method of inflation of the aedeagi, see Gapon [2001]. In the descriptions of the aedeagus structures, ventral and dorsal surfaces of aedeagal parts are distinguished according to their positions in the erected aedeagus (i.e. rotated through 180° as compared to the positions in the non-copulating insect). The nomenclature of aedeagal parts in Pentatomidae was considered by Konstantinov and Gapon [2005]. The pygophore is described in resting position.

The following abbreviations are used in figures: *a. con* — apex of conjunctiva; *a. pr* — apical processes of medial penal plates; *b. pl* — basal plate of paramere; *c. pr* — capitate processes of phallobase; *cap* — capsule of spermatheca; *d. sp. d* — dilation of spermathecal duct; *d. con* — dorsal connectives of phallobase; *d. r. s* — dilations of ring sclerites of gynatrium; *gyn. c* — gynatrial cone; *hyp* — hypophysis of paramere; *lam. pr* — lamellar projections of pygophoral ventral rim; *lat. pl* — lateral plates of pygophore; *lg. br* — larger branches of conjunctival ventrolateral lobes; *p. s* — parameral sockets; *r. s* — ring sclerites of gynatrium; *s. ap* — suspensory apodemes; *s. pr* — sensory process of paramere; *s. r* — sclerotized rod of spermathecal duct; *sm. br* — smaller branches of conjunctival ventrolateral lobes; *sp. ap* — spermathecal reservoir appendages; *sp. p* — spermathecal pump; *th* — theca; *v. tub* — ventral tubercles of theca; *v. pr* — ventral processes of phallobase; *ves* — vesica. Scale lines in all figures correspond to 0.25 mm.

Systematic part

Genus *Holcogaster* Fieber, 1860

Holcogaster Fieber, 1860: 80. Type species by subsequent monotypy (Fieber, 1861: 337) *Pentatoma fibulatum* Germar, 1831.

Aulacetrus Mulsant & Rey, 1866: 247, pl. 2, fig. 12 . Type species by monotypy *Pentatoma fibulatum* Germar, 1831.

Currently the genus *Holcogaster* contains four species: *H. exilis* Horváth, 1903, *H. fibulata* (Germar, 1831), *H. longicornis* Wagner, 1955, and *H. weberi* Wagner, 1964. We consider them all to be conspecific.

Holcogaster fibulata (Germar, 1831)

Pentatoma fibulatum Germar, 1831: Tabl. 10 and legend (Cimex).

Holcogaster fibulatum: Fieber, 1861: 337; Puton, 1881: 67.

Holcogaster fibulata var. *exilis* Horváth, 1903: 406 (upgraded by Wagner, 1955: 81), **syn.n.**; Kirkaldy, 1909: 145.

Holcogaster fibulata meridionalis de Seabra, 1924 : 13 (syn. by Wagner, 1955 : 82); Gulde, 1934: 154; Vidal, 1949: 181.

Holcogaster exilis: Wagner, 1955: 81; Stichel, 1960-61: 607, 757; Wagner, 1964: 56–60.

Holcogaster longicornis Wagner, 1955: 82, **syn.n.**

Holcogaster weberi Wagner, 1964: 56, **syn.n.**; Perrier, 1965: 16 ; de la Fuente, 1972 (1972): 196; Josifov, 1981: 164.

TYPE MATERIAL EXAMINED. *H. fibulata* var. *exilis* Horv., lectotype (designated here, HNHM): ♂, "Tunis, de Vauloger (printed)", " var. *exilis* (type) (handwritten), Coll. Horváth (printed)", "typus (red margin and red printed). Paralectotype (designated here, HNHM): ♂, "Méchéria, (Oran), L. Bleuse (printed); back side: 7 1896 (handwritten)", "var. *exilis* H., typ. (handwritten), Horváth (printed)", "*H. fibulata* Germ. v. *exilis* Horv. (handwritten), det. Horváth (printed)", "coll. Horváth (printed)", "typus (red margin and red printed)".

H. weberi Wagn.[1], paratypes: 3 ♂, 4 ♀ (MZBS), First label (handwritten): Menorca /Algaiarens[2]/ VIII-56 F. Español leg. Second label (handwritten): MZB 83-8321 (handwritten).

ADDITIONAL MATERIAL EXAMINED. **Canary Islands**: Teneriffe, 26.III.1964 (J. Ribes), 1♂, 1♀; Teneriffe, Teide, 2200 m, 1−4.XII.1970 (E. Heiss), 2 ♂ (ZISP), 2 ♀; Teneriffe, La Esperanza, 15.VI.1977 (A. Brito), 1 ♂; **Morocco**: Mogador (=Essaouira), 12.II.1961 (M. Meinander), 1 ♂, 1 ♀ (ZISP); Moyen Atlas, S of Col du Zad, 24.IV.1997 (P. Oromí), 1♂; 1800 m, Haut. Atlas between Toufliht and Tazougerte, 1750 m, 24.IV.1997 (P. Oromí), 1♀; Tizi Ifri, Al Hoceima, V.1966 (A. Pardo), 2 ♂, 1 ♀; **Algeria**: El Meahdu (collection E. de Bergevin), 1 ♀ (ZISP); **Libya**: El Merj, 30. VIII.1962 (R.Linnavuori), 1 ♂ (ZISP); El Merj-Gubba road, 31.VIII.1962 (R.Linnavuori), 1 ♂ (ZISP); **Israel**: Afula, 11.VI.1947 (R.Linnavuori), 1 ♂ (ZISP); : Çiftehan, 27−31.V.1955 (G.Seidenstücker), 1 ♂ (ZISP); Posanti, 9−15.V.1955 (G.Seidenstücker), 1♂ (ZISP); **Spain**, **Andalusia**: Tarifa (Cádiz), VII. 1988 (J. de Ferrer), 1 ♂, 1 ♀; Maria (Almeria), 3.V.1981 (J. Ribes), 2 ♂, 2 ♀; **Spain**, **Valencia**: Castelló, Penyagolosa, St. Joan, 12.IV.1968 (J. Ribes), 1♀, Onil (Alacant), 17.XI.1973 (N. Sauleda), 1 ♂; Port de Confrides (Alacant), 23.VIII.1968 (J. Ribes), 1 ♂, Serra d'Aitana (Alacant), 16.V.1977 (T.G. Sempere), 1 ♀; **Spain**, **Aragon**: Pina de Ebro (Zaragoza), 22.IV.1991 (J. Blasco), 1 ♂; **Spain**, **Catalonia**: Els Torms (Garrigues, Lleida), 21.VIII.1965 (J. Ribes), 1 ♂; Serra de la Llena, El Curull (Conca de Barberà, Tarragona), 16.IV.1965 (J. Ribes), 1 ♂; pas de Mont-rebei (Noguera, Lleida), 7.VII.1995 (E. Ribes), 1 ♀; L'Albi (Garrigues, Lleida), 14.V.1967 (J. Ribes), 1 ♀; Begues (Baix Llobregat, Barcelona)11, 18.V.2003 (E. & J. Ribes), 3 ♂, 1 ♀; L'Ametlla (Vallès Oriental, Barcelona), 27.IX.1970 (J. Ribes), 2 ♀; Valldoreix (Vallès Occidental, Barcelona), 12.X.1961, 18.IX.1975 (J. Ribes), 3 ♂; Sora (Osona, Barcelona), 24.V.1981 (J. Ribes), 1 ♂, 1 ♀; Vallvidrera, Barcelona 2.VIII.1956 (C. Altimira), 1 ♂, 1 ♀; Terrades (Alt Empordà, Girona), 20.IV.1975 (J. Ribes), 1 ♀; **France**: Gallia mer., 1 ♂, 1 ♀ (ZISP); Alpes de Haute Provence: Montagne de Lure, col du Pas de la Graille (1600 m), 28.VI.1990 (J. Péricart, P. Putshkov, A. Matocq), 1 ♂ (coll. A. Matocq); Route du V.V. F de Castelgan, 13.VI.1982, 1 ♀ (coll. A. Matocq); **Greece**: Arcady, Tholo beach, 17.VII.1987 (A. Matocq), 1 ♀ (coll. A. Matocq); Crete, Koutsounari, 1−2.VI.1997 (A. Matocq), 1 ♂ (coll. A. Matocq).

DISTRIBUTION. The Canary Islands, Portugal, Spain, France, Switzerland, Italy, Croatia, Albania, Macedonia, Bulgaria, Greece, Cyprus, Turkey, Israel, Iraq, Morocco, Algeria, Tunisia, Libya.

BIOLOGY This species is associated with conifers, it lives on *Pinus* (*P. canariensis*, *P. halepensis*, *P. pinea*, *P. sylvestris*), *Cupressus*, *Juniperus* (*J. oxycedrus*, *J. phoenicea*, *J. thurifera*) and *Callitris*. It occurs in various habitats, including mountains up to a height of 1800 m (the Alps, Atlas Mountains).

The specimens examined are characterized by great variability and have no reliable characters allowing differentiation of species within the genus (see table 1). Characters used by Wagner [1964] to distinguish *Holcogaster fibulata* and *H. longicornis*, namely the width and length of the head, and the ratio of length and width of the female genital plates, are overlapping. According to Wagner, *H. fibulata* and *H. longicornis* can be separated, from *H. exilis* and *H. weberi* by their larger size (greater than 6.4 mm), and their darker coloration, with the segments of the connexivum having only a yellow stripe on along the hind margin. Specimens of *H. exilis* and *H. weberi*, according to his data, are always shorter (less than 6 mm), and light grey (sometimes with

Table 1. Measurments of *Holcogaster* specimens (average values are in brackets)
Таблица 1. Промеры *Holcogaster* (средние значения указаны в скобках)

Males and females, mm		Canary Islands (4 ♂, 3 ♀)	Morocco (4 ♂, 2 ♀)	Algeria, Libya (2 ♂, 1 ♀)	Spain, France (8 ♂, 6♀)	Greece, Israel, Turkey (5 ♂)
Body length		5.80–7.25 (6.46)	5.50–6.95 (6.3)	4.45–6.15 (5.12)	5.05–7.15 (6.08)	5.10–6.25 (5.74)
Body width		3.10–3.7 (3.44)	3.10–4.00(3.53)	2.55–3.15 (2.80)	2.80–3.95 (3.46)	2.55–3.5 (3.15)
Head length		1.48 1.63 (1.53)	1.48 1.75 (1.61)	1.28 1.48 (1.36)	1.33 1.63 (1.51)	1.40 1.60 (1.50)
Head width		1.68 1.80 (1.74)	1.63 1.93 (1.78)	1.45 1.73 (1.56)	1.50 1.98 (1.75)	1.55 1.75 (1.67)
Width of vertex		1.08 1.20 (1.11)	1.08 1.25 (1.17)	0.95 1.15 (1.03)	1.00 1.30 (1.16)	1.00 1.15 (1.09)
Length of antennal segments	I	0.40 0.45 (0.43)	0.35 0.45 (0.40)	0.30	0.30 0.40 (0.37)	0.30 0.38 (0.36)
	II	0.48–0.55 (0.51)	0.38–0.53 (0.46)	0.35–0.43 (0.38)	0.4–0.53 (0.47)	0.33–0.48 (0.43)
	III	0.80–1.03 (0.90)	0.60–0.83 (0.73)	0.58–0.60 (0.58)	0.53–0.75 (0.67)	0.65–0.78 (0.73)
	IV	0.93 1.13 (1.03)	0.73 0.93 (0.83)	0.70	0.73 0.88 (0.81)	0.73 0.83 (0.78)
	V	0.78 0.96 (0.91)	0.73 0.90 (0.81)	0.68 0.73 (0.69)	0.70 0.85 (0.77)	0.70 0.80 (0.77)
Antennal length		3.48 4.08 (3.75)	2.78 3.6 (3.22)	2.60 2.75 (2.65)	2.68 3.38 (3.09)	2.70 3.18 (3.02)
Scutellum length		2.05–2.60 (2.32)	2.05–2.65 (2.35)	1.60–2.15 (1.82)	1.80–2.45 (2.27)	1.65–2.30 (2.08)
Scutellum width		2.10–2.50 (2.32)	2.05–2.75 (2.39)	1.50–2.2 (1.83)	1.85–2.65 (2.30)	1.75–2.35 (2.14)

[1] Holotype data for *H. weberi* (Spain, Menorca, Son Bou, 5.X.1962, leg. E. Wagner) have not been given in the original description. The specimen labelled as holotype of H. longicornis [Canary Islands, Hierro, Cumbre El Bresal (correct spelling is Cumbre del Brezal), 1300 m, 27–29.III.1950, leg. H. Lindberg (Zoological Museum in Hamburg)] is not the specimen indicated as holotype in the original description [Aukema, Kerzhner, 2005].

Table 2. The ratios of measurements of some morphological structures, discussed by Wagner
Таблица 2. Соотношения промеров некоторых морфологических структур, обсуждаемых Вагнером

Ratios of measurements, mm	Canary Islands	Morocco, Algeria, Libya, Israel, Turkey	Spain, France, Greece
Antennal length / pronotum width	1.05–1.23	0.87–1.06	0.84–0.96
III antennal segment / width of vertex	0.74–0.85	0.52–0.69	0.47–0.66
II–III antennal segments / width of vertex	1.21–1.33	0.89–1.08	0.93–1.07
II–III antennal segments / IV segment	1.30–1.43	1.32–1.46	1.31–1.60

orange-red colours), with the segments of the connexivum half black and half grey-yellow. In the material examined by us, there are specimens of *H. weberi* longer than 6 mm (e.g., ♀ from Penyagolosa (Spain), determined by Wagner, is 6.4 mm length), and the body length of the largest specimen of *H. exilis* is 6.95 mm. The largest examined specimen is 8.4 mm long (♀ from Dordogne, SW France; it was measured by the senior author and so this data is not included in the table); body length of the smallest specimen is 4.45 mm (♂ from Libya). In all "species", there are paler and darker specimens, and some specimens of the first pair of "species" also have red colors.

According to Wagner, each antenna of *H. longicornis* is 1.25 times as long as the width of the pronotum, with segment III 0.95–1.0 mm long and as long as the width of the vertex; each antenna of *H. fibulata* is about the same width as the pronotum, with segment III about 0.6–0.7 times as long as the width of the vertex, and even segments II and III combined are at most slightly longer than the width of the vertex. In *H. exilis*, the antennae are as long as the width of the pronotum, segments II+III together are not longer than the width of the vertex, segment III is 0.60–0.65 times as long as the width of the vertex and longer than segment IV, which is slightly longer than segment V. In *H. weberi*, antennal segments II+III are longer than the vertex width, and segment III is 0.8-0.9 times as long as IV, which is equal in length to segment V.

Our data of ratios of these measurements (table 2) show that a small difference the in ratios antennal segment III / width of vertex and antennal segments II+III / width of vertex separates specimens from the Canary Islands. However, this character is obviously insufficient to consider the Canary Islands population as either a good species or subspecies.

Discussion of the variability of the male and female genitalia, including the male pygophore, is given below.

Structure of pygophore and male genitalia

Pygophore (Figs 1–2) widened to apex. Emargination of its dorsal wall deeper than that of ventral wall. Edge of dorsal emargination straight medially, with short, trapezoid plate bearing two lateral processes. Ventral rim of pygophore with pair of wide, flat, thin-walled lamellar projections, which are bent slightly dorsad. Internal lateral walls of pygophore quite large, concave. Medial to them are strongly sclerotized lateral plates (they are local sclerotizations of membrane connecting the paramere with the lateral edge of pygophore which is characteristic of various Pentatomidae). These plates are connected with internal lateral walls of pygophore by areas of weaker sclerotization. Genital opening almost quadrangular, with rounded distal margin. Parameral sockets nearly rounded, their margins formed by lateral walls and lateral plates. Dorsal edge of each lateral plate merges with process of the trapezoid plate on dorsal margin of pygophore. Ventral rim, its lamellar projections, internal lateral walls, trapezoid plate of dorsal rim and lateral surfaces of pygophore are covered with setae (not shown in figures).

The structure of the pygophore differs slightly in specimens from different parts of the distribution range, mainly in the shape of the apical angles (on the views in one plane). Individuals from the Canary Islands (Fig. 3) have the apical angles more narrowly rounded and longer with the internal margins very weakly convex. Moroccan individuals (Fig. 4) are characterized by more broadly rounded apical angles, which have the internal margins more convex (but located at the same level with the topmost point of the angle). Specimens from Libya and Algeria have shorter apical angles, with strongly convex internal margins. The apical angles from specimens occurring in Spain (Figs 1–2) have an intermediate length and width; their internal margins are moderately convex. Individuals from Crete (Fig. 5) have even shorter apical angles with strongly convex internal margins (the convexity is located distad of the topmost point of the angle). Similar apical angles are characteristic of specimens from Turkey and Israel (Fig. 6), but their pygophoral angles have less acute convexity. In addition, specimens from the eastern part of the range are smaller, also their pygophores are smaller. The syntypes of *H. exilis* and the paratypes of *H. weberi* studied in this project have the same apical pygophoral angles as specimens from Turkey and Israel.

These distinctions cannot be considered as a method for separating the various species. The changes in the shape of the apical angles of the pygophore are gradual, and individual variability exists in each considered geographical area. For example, some individuals from Catalonia have wide apical angles with rather strongly convex internal edges, and other individuals are characterized by more weakly rounded angles with weakly convex internal edges.

Paramere (Fig. 18). The basal plate of the paramere is strongly displaced forward, and it is narrow and rather long. The body of paramere is narrow and flattened laterally. The sensory process is prominent; bearing a group of setae. The hind edge of the paramere body is expanded in a thin plate with internal edge longer than external one. The hypophysis of paramere is long, flat, lancet-like. The base of the hypophysis bears a group of long setae on the margin. Parameres of all examined specimens virtually do not differ (Figs 18–22). Contrary to evidence of Wagner [1964] that the hypophysis of paramere of paratypes of *H. weberi* lacking tubercles.

Structure of aedeagus. The phallobase (Fig. 9) is slightly wider than long. Free ends of its basal plates are short. The ventral processes are rather long, triangular. The dorsal connectives are very short. The capitate processes are large, with long stalks and very wide roundish plates. The length of the suspensory apodeme is approximately equal to length of phallobase. Essential distinctions in the structure of phallobase have not been found in the specimens examined.

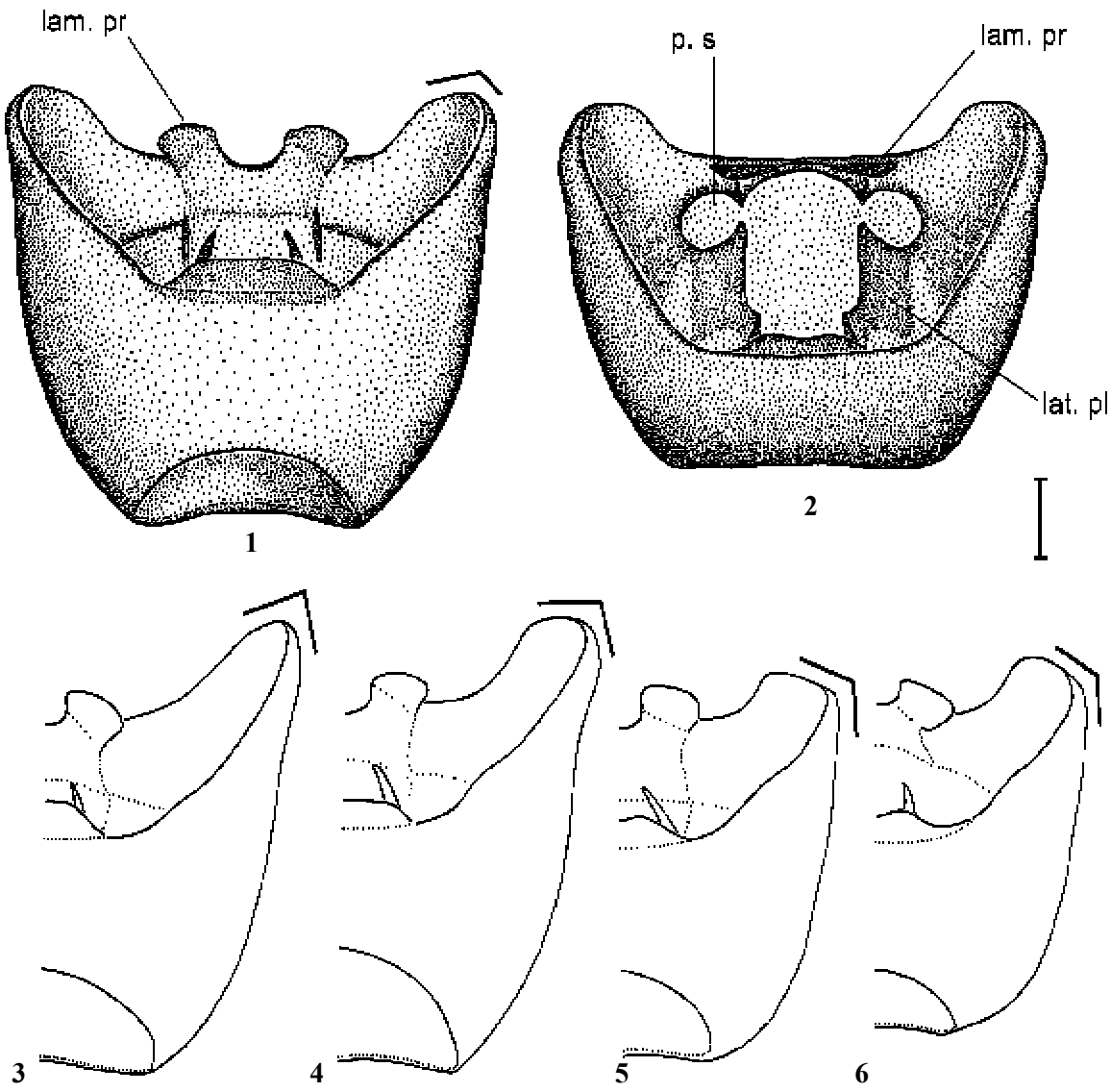


Fig. 1–6. Pygophore of *Holcogaster fibulata*: 1–2 — Spain, Catalonia, Begues; 3 — the Canary Islands, Tenerife; 4 — Morocco, Tizi Ifri; 5 — Crete, Koutsounari; 6 — Turkey, Posanti; 1, 3–6 — dorsal view; 2 — caudal view

Рис. 1–6. Пигофор *Holcogaster fibulata*: 1–2 — Испания, Каталония, Begues; 3 — Канарские острова, Тенерифе; 4 — Марокко, Tizi Ifri; 5 — Крит, Koutsounari; 6 — Турция, Posanti; 1, 3–6 — дорсально; 2 — каудально.

The aedeagal theca (Figs 7–8) is rather large and strongly sclerotized, not subdivided into basal and apical parts, widened laterally toward the middle. Its dorsal wall is moderately convex; the ventral wall is convex at the base and concave near the apex. The base of the theca bears large membranous ventral tubercles. Each ventrolateral surface of the theca with a small sclerotized tubercle near its orifice. The ejaculatory reservoir occupies most of the thecal cavity.

The endosoma is rather small. The paired ventro-lateral lobes of conjunctiva are divided into two branches. The smaller branch is sclerotized only on edges, with flat apical surface, and directed ventrad. The larger branch is flattened dorso-ventrally, with the ventral surface weakly sclerotized; apices of larger branches are directed toward the aedeagal basis and one to each other. The apex of conjunctiva [dorsal lobe in Gapon, 2005] is large, expanded in dorsal part, where it extends beyond the edge of the theca. The ventral wall of the conjunctiva between the bases of the ventro-lateral lobes is flattened and partially sclerotized. Vesica long, sclerotized, C-shaped, bent ventrad. On each side of vesical base, there are rudiments of apical processes of medial penal plates. Rudiments of their longitudinal bands are located apically near the bases of ventro-lateral lobes.

Differences in the aedeagal structure from individuals from different geographical areas consist mainly in the size and orientation of smaller branches of ventro-lateral lobes. These branches are larger, directed strongly ventrad and slightly bent outside in specimens from the Canary Islands (Figs 10–11), Morocco (Figs 12–13), Spain (Figs 7–8) and France. In specimens from Crete, Libya and Israel (Figs 14–15) these branches are smaller, bent apicad and rather inward. In the examined specimen from Turkey (Figs 16–17), the branches are small, directed strongly ventrad and rather inward. These differences can be explained by the smaller body size of

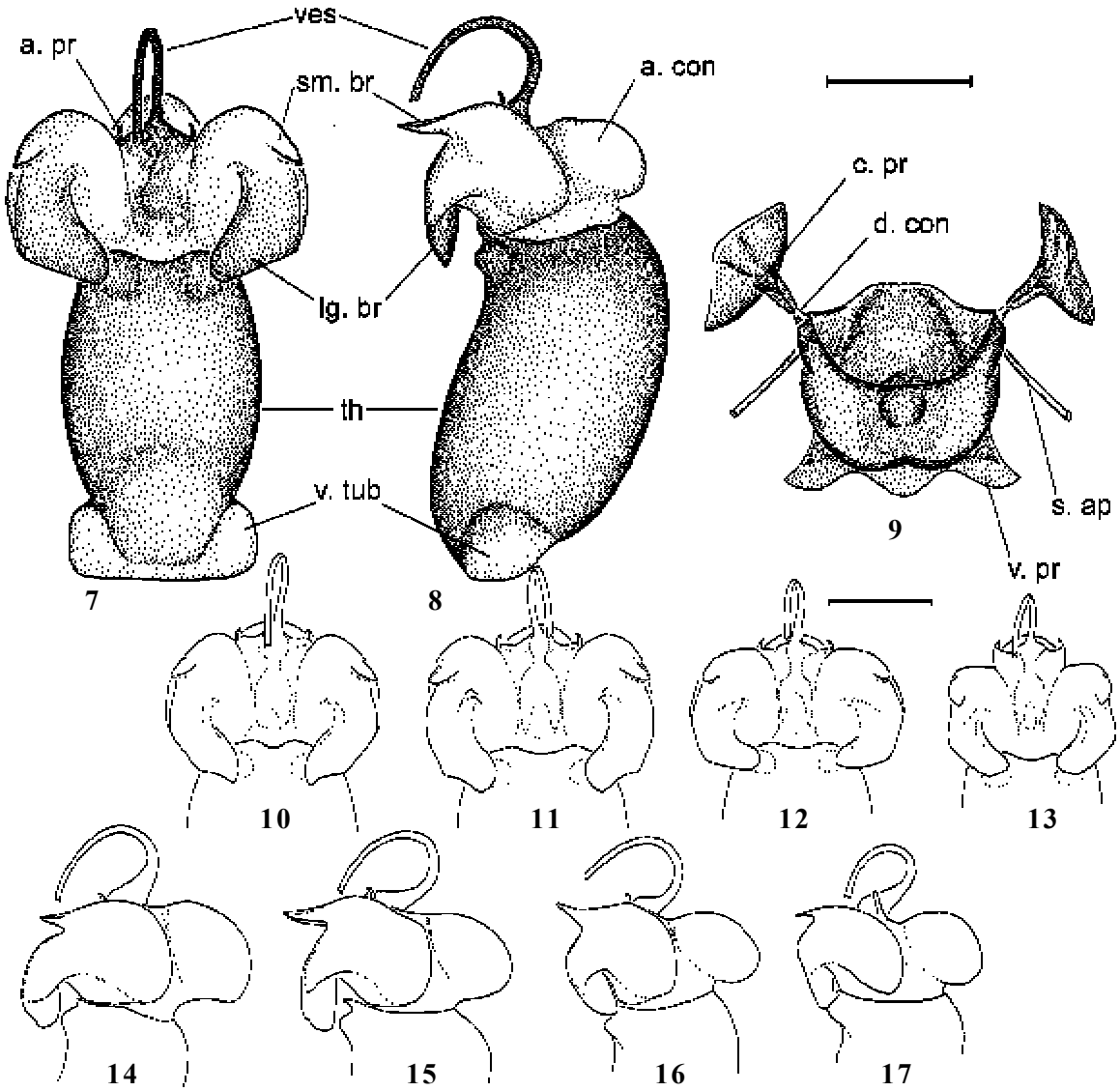


Fig. 7–17. Aedeagus of *Holcogaster fibulata*: 7–9 — Spain, Onil; 10–11 — the Canary Islands, Tenerife; 12–13 — Morocco, Col du Zad; 14–15 — Israel, Afula; 16–17 — Turkey, Çiftehan; 7, 9, 10, 12, 14, 16 — ventral view; 8, 11, 13, 15, 17 — lateral view.

Рис. 7–17. Эдеагус *Holcogaster fibulata*: 7–9 — Испания, Onil; 10–11 — Канарские острова, Тенерифе; 12–13 — Марокко, Col du Zad; 14–15 — Израиль, Afula; 16–17 — Турция, Çiftehan; 7, 9, 10, 12, 14, 16 — вентрально; 8, 11, 13, 15, 17 — сбоку.

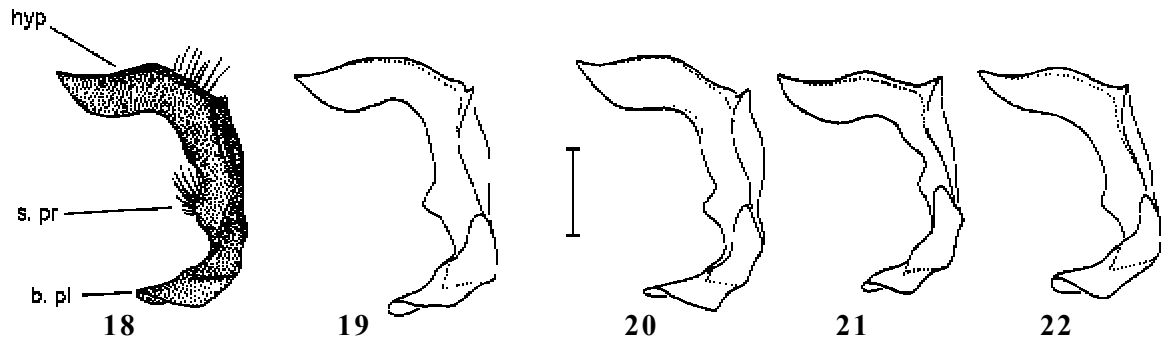
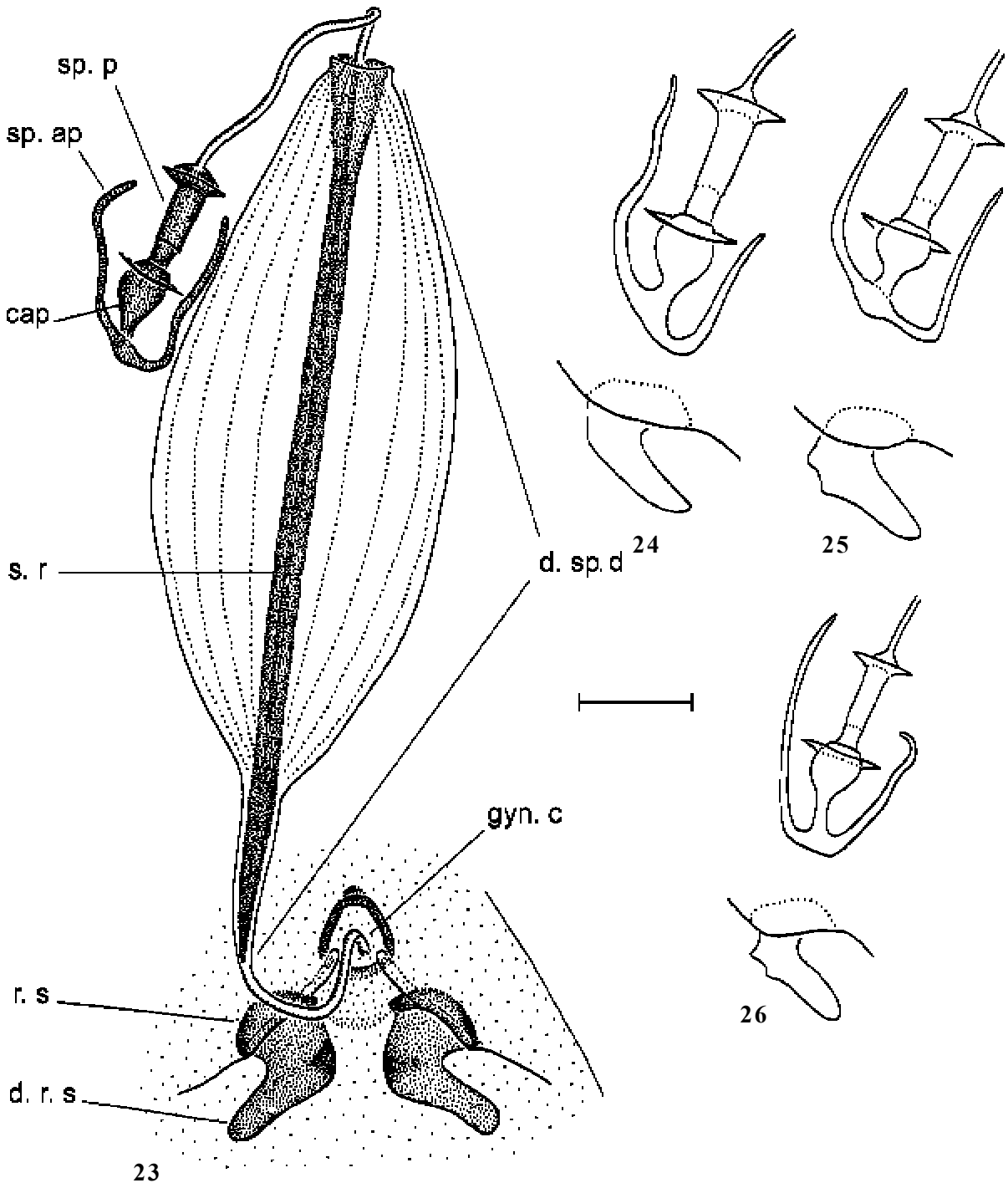


Fig. 18–22. Right paramere of *Holcogaster fibulata*, lateral view. 18 — Spain, Catalonia, Begues; 19 — the Canary Islands, Tenerife; 20 — Morocco, Tizi Ifri; 21 — Crete, Koutsounari; 22 — Israel, Afula.

Рис. 18–22. Правый парамер *Holcogaster fibulata*, вид сбоку. 18 — Испания, Каталония, Begues; 19 — Канарские острова, Тенериф; 20 — Марокко, Tizi Ifri; 21 — Крит, Koutsounari; 22 — Израиль, Афула.



Figs 23–26. Internal ectodermal female genitalia of *Holcogaster fibulata*, dorsal view: 23 — Spain, Catalonia, Begues; 24 — the Canary Islands, Tenerife; 25 — Morocco, Tizi Ifri; 26 — Algeria, Meahdu.

Рис. 23–26. Внутренние эктодермальные гениталии самки *Holcogaster fibulata*, дорсально: 23 — Испания, Каталония, Begues; 24 — Канарские острова, Тенерифе; 25 — Марокко, Tizi Ifri; 26 — Алжир, Meahdu.

individuals from the eastern part of the distributional range. Accordingly, their aedeagi are smaller and less inflated in the preparations. Differences in the shape of the conjunctival apex and the larger branches of the ventro-lateral lobes in specimens examined are insignificant.

Structure of female genitalia

The first gonocoxae are the largest of genital plates, irregularly triangular with apical angles rounded. The second gonocoxae are fused, forming a single wide and short trapeziform

plate tapering caudad. Ninth paratergites are rather large, elongate. Each eighth paratergite contains a spiracle. The genital plates are very similar in all specimens examined.

The ring sclerites, which are located on each side of the gynatrial cone base, are rather large (Fig. 23). They lie in a transverse plane and they have large, L-shaped, sclerotized dilatations directed caudad and laterad. Gynatrial cone of equal length and width, somewhat tapering cephalad, sclerotized on each side and dorsally at the apex. The spermatheca starts from the gynatrial cone by thin and moderately long proximal duct. It enlarges into very long (reaching the anterior margin of the abdomen) membranous dilation, which is subdivided into short, tubular proximal and long, swollen distal parts. Heavily sclerotized invaginated sclerotized rod reaches proximal extremity of spermathecal dilation. Distal duct of the spermatheca, emerging from the sclerotized rod, is somewhat longer and thinner than the proximal duct. The spermathecal pump is long, with rather wide flanges. Spermathecal capsule is moderate, globose, distally extended into narrow canal bearing a pair of long horn-shaped appendages bent proximad.

Internal ectodermal genitalia in the females examined differ to some extent in the shape of the dilations of ring sclerites and comparative length of spermathecal appendages. Dilations of ring sclerites of individuals from France and the Canary Islands (Fig. 24) have shallow indentations on inner angles in contrast to specimens from Morocco (Fig. 25) and Algeria (Fig. 26), which have deeper indentations. The appendages on the spermathecal reservoir are of slightly unequal length in specimens from the Canary Islands (Fig. 24) and Algeria (Fig. 26). Some specimens from Spain (including a paratype of *H. weberi*) have a small membranous papilla on one of spermathecal capsule appendages. The irregular character distribution of these features does not allow division into species.

On the ground of the foregoing, *Holcogaster exilis*, *H. weberi* and *H. longicornis* are synonymized with *Holcogaster fibulata* (Germ.).

ACKNOWLEDGEMENTS. We heartily thank Prof. I.M. Kerzhner (Zoological Institute, St.-Petersburg) and D.A. Rider (North Dakota State University) for help in the preparation of this paper, A. Carapezza (Palermo), J. de Ferrer (Algeciras), H. Günther (Ingelheim), À. Lagar (Barcelona), R. Lupoli (Fontenay-sous-bois), G. Masó (Zoological Museum, Barcelona), A. Matocq (Paris), M. Morales (Santa Cruz de Tenerife), P. Oromí (University of La Laguna) and T. Vásárhelyi (Hungarian National History Museum, Budapest) for the loan or donation of material.

References

Aukema B. & Kerzhner I.M. 2005. Type specimens of some Palaearctic Pentatomomorpha described by E.Wagner (Heteroptera: Rhopalidae, Cydnidae, Scutelleridae and Pentatomidae) // Zoosystematica Rossica. Vol.14. No.1. P.69–72.

Fieber F.X. 1860–1861. Die europäischen Hemiptera, Halbflüger. (Rhynchota Heteroptera). Gerold's Sohn. Wien. S.i-vi, 1–444.

Fuente J.A. de la. 1974. Revisión de los pentatómidos ibéricos (Hemiptera). Parte II. Tribus Aeliini Stål, 1872, Stagonomini nov. nom. (= Eysarcorini auct.) y Carpocorini Distant, 1902 // Eos. Vol.48 (1972). P.115–201.

Gapon D. 2001 (2000). Inflation of heteropteran aedeagi using microcapillaries (Heteroptera: Pentatomidae) // Zoosystematica Rossica. Vol.9. No.1. P.157–160.

Gapon D. 2005. On the question of the taxonomical status of tribe Procleticini Pennington (Heteroptera: Pentatomidae) // Caucasian Entomological Bulletin. Vol.1. No.1. P.4–18. (in Russian).

Germar E.F. 1831. Fauna insectorum Europae 14. Kümmel, Halae. Pls.1–25.

Gulde J. 1934. Die Wanzen Mitteleuropas. Hemiptera Heteroptera Mitteleuropas. 3. 4. Familie Pentatomidae. Verlag des Internationalen Entomologischen Vereins, Frankfurt am Main. S.77–194.

Horváth G. 1903. Pentatomidae novae extraeuropeae // Annales Historico-Naturales Musei Nationalis Hungarici. Vol.1. P.400–409.

Josifov M. 1981. Heteroptera, Pentatomoidea // Fauna Bulgarica. Vol.12. P.1–205 [in Bulgarian].

Kirkaldy G.W. 1909. Catalogue of the Hemiptera (Heteroptera) with biological and anatomical references, lists of food plants and parasites, etc., prefaced by a discussion of Nomenclature and an analytical table of families. Vol. 1. Cimicidae. Berlin. xl + 392 pp.

Konstantinov F.V. & Gapon D.A. 2005. On the structure of the aedeagus in shield bugs (Heteroptera, Pentatomidae): 1. Subfamilies Discocephalinae and Phyllocephalinae // Entomologicheskoe Obozrenie. Vol.84. No.2. P.334–352. (in Russian; English translation in: Entomological Review. Vol.85. No.3. P.221–235).

Mulsant E. & Rey C. 1866. Histoire naturelle des Punaises de France. Pentatomides. // Savy & Deyrolle, Paris. 365 pp + 2 pl. (also published in: Annales de la Société Linnéenne de Lyon (N.S) 13 (1866): 291-367; 14 (1867): 1-296).

Perrier R. 1965. La Faune de la France. 4. Hémiptères, Anoplures, Mallophages, Lépidoptères. Librairie Delagrave. 245 p.

Puton A. 1881. Synopsis des Hémiptères Hétéroptères de France. 4e partie. Puton, Remiremont. P.1–129 (also published in Mémoires de la Société des Sciences, de l'Agriculture et des Arts de Lille. Vol.4. No.10. P.229–357).

Seabra A.F. de. 1924. Observações sôbre a classificação de algumas espécies de Hemípteros de Portugal // Memórias e Estudos do Museo Zoológico da Universidade de Coimbra. Vol.1. No.25. P.1–19.

Stichel W. 1960. Illustrierte Bestimmungstabellen der Wanzen. II. Europa. Vol.4. Ht.19. S.577–608.

Stichel W. 1961. Illustrierte Bestimmungstabellen der Wanzen. II. Europa. Vol.4. Ht.24. S.737–768.

Vidal J.P. 1949. Hémiptères de l'Afrique du Nord et des pays circum-méditerranéens // Mémoires de la Société des Sciences Naturelles du Maroc. Vol.48. P.1–238.

Wagner E. 1955. Zur Systematik der Gattung Holcogaster Fieb. (Heteroptera: Pentatomidae) // Beiträge zur Entomologie. B.5. Nr.1–2. S.81–84.

Wagner E. 1964. 2. Beitrag zur Systematik der Gattung *Holcogaster* FIEBER, 1860 (Hem. Het. Pent.) // Mitteilungen der Deutschen Entomologischen Gesellschaft. B.23. Ht.3. S.56–60.