

## A Revision of *Anthomyza macra* CZERNY and *A. pleuralis* CZERNY (Diptera, Anthomyzidae)

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(With 24 Figures)

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### Abstract

*Anthomyza macra* CZERNY, 1928 and *A. pleuralis* CZERNY, 1928 are redescribed with figures of the male and female genitalia and lectotypes of them are designated. Eggs of *A. macra* and *A. pleuralis* are described and illustrated, data about their biology and distribution summarized and supplemented with new findings, their relationships discussed and a key to them, comprising also *A. socculata* (ZETTERSTEDT, 1847), is presented.

### Zusammenfassung

*Anthomyza macra* CZERNY, 1928 und *A. pleuralis* CZERNY, 1928 werden wiederbeschrieben und die männlichen und weiblichen Genitalia abgebildet. Die Lectotypen werden festgelegt. Eier von *Anthomyza macra* und *A. pleuralis* werden beschrieben und dargestellt. Die Daten über die Biologie und Verbreitung werden zusammengefaßt und durch neue Fundortangaben ergänzt. Es wird die Verwandtschaft diskutiert und ein Bestimmungsschlüssel präsentiert, der auch *A. socculata* (ZETTERSTEDT, 1847) berücksichtigt.

*Anthomyza macra* CZERNY, 1928 and *A. pleuralis* CZERNY, 1928 are very little-known European species of Athomyzidae. Their close relationships have not been recognized up to the present because CZERNY (1928) distinguished them according to strikingly different colouring of pleurae, and, in consequence of this, he did not compare *A. macra* with *A. pleuralis* but with *A. ungulata* LOEW, 1873 [= *A. socculata* (ZETTERSTEDT, 1847)], which is not closely related though a superficially similar species. This fact, along with the previously unknown variability of colouring of pleurae in *A. macra* and poor original descriptions of both the species concerned, caused much confusion as to their interpretation in the subsequent literature (see COLLIN, 1944; TROJAN 1962; STACKELBERG, 1970; ROHÁČEK, 1983).

This study is therefore aimed at rectifying all mistakes involved in published descriptions, keys and distributional data by means of lectotype designations, detailed redescriptions (including first illustrations of the male and female ter-

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minalia) and revision of previous records of *A. macra* and *A. pleuralis*. Also their biology is commented upon the basis of recently acquired material and a new key to the identification of *A. macra*, *A. pleuralis* and the externally similar *A. socculata* is constructed. Finally, a brief discussion is included dealing with the relationships of the sister-pair studied.

#### Material examined

The type material and other specimens examined (100) are deposited in the museums and collections as follows: IPE – Institut für Pflanzenschutzforschung der Akademie der Landwirtschaftswissenschaften, Eberswalde (GDR); JZP – Collection of J. Zuska, Praha; MBP – Collection of M. Barták, Praha; MHK – Krajské muzeum východních Čech, Hradec Králové; NMP – Národní muzeum, Praha (all Czechoslovakia); NMW – Naturhistorisches Museum, Wien (Austria); OMS – Okresní muzeum, Soběslav; SMO – Slezské muzeum, Opava (both Czechoslovakia); TMB – Természettudományi Múzeum Állattára, Budapest (Hungary); UMO – University Museum, Oxford (England); VMZ – Collection of V. Martinek, Praha-Zbraslav (Czechoslovakia); ZIL – Zoological Institute, Lund (Sweden).

#### *Anthomyza macra* CZERNY, 1928

(Figs. 1–16)

*Anthomyza macra* CZERNY, 1928: 4; TROJAN, 1962: 39; ANDERSSON, 1984: 52

Type material: Lectotype ♂ (hereby designated) labelled: "Austria sup. Kremsm. CZERNY", "21/5" and "*Anthomyza macra* CZERNY ♂ det. L. CZERNY". Paralectotypes: 4♂ 1♀ with the same data as for lectotype. All types deposited in NMW. Abdomens of one male and one female paralectotypes detached, dissected and preserved in plastic microtubes with glycerine, pinned below respective specimens. Abdomen of another male paralectotype is missing.

Material examined (besides type specimens): 24♂ 34♀.

Czechoslovakia: 22♂ 32♀ (MBP, NMP, OMS, SMO, TMB, VMZ) – Bohemia: Nové Město v Krušných horách (MARTINEK leg.), Soběslav (MÁČA leg.), Jizerské hory-Karlovy (MACEK leg.); Moravia: Brno-Kozí hora, Brno-Bystrc, Brno-dam (BARTÁK leg.), Strážnice-Přívoz (MARTINEK leg.), Bělá p. Prad. (ROZKOŠNÝ leg.); Slovakia: Nová Vieska, Čenkov nr. Štúrovo (ROHÁČEK leg.), Kováčovské kopce Mts. (ZEMAN leg.), Tatranská Kotlina (ROHÁČEK leg.), Bártfa (= Bardejov) (KERTÉSZ leg.), Snina-Cirocha shores, Stakčín, Vihorlat-Sninský kameň Mt., Ruský Potok, Streda n. Bodr. (all ROHÁČEK leg.).

Roumania: 1♂ 1♀ (TMB) – Mehádia (KERTÉSZ leg.).

Sweden: 1♂ 1♀ (ZIL) – Sk: Lund (HANSSON leg.), Lund-Pålsjö (ANDERSSON leg.).

#### Description

Male. Total body length 2.1–2.7 mm. General colour brown to dark brown, relatively sparsely pollinose, subshining. Head somewhat higher than long (7:6), with hardly projecting frons and non-receding face. Most of head yellow, only occiput (darker) and frontal triangle including ocellar triangle (paler) brown. Frontal triangle less pollinose, distinctly shining and reaching middle of frons. Orbits, praefrons (face) and partly also gena whitish dusted. Cephalic chaetotaxy: postvertical setae longer than usual in *Anthomyza* ssp. (more than half length of internal verticals); external and internal vertical bristles long; 3 orbital setae – 2 posterior long, the most anterior reduced and hair-like though distinctly longer

than in members of the *A. gracilis*-group; 2–3 pairs of minute hairs arising on frons behind frontal lunule; one long vibrissa; peristomal and postocular setulae short. Eye large, oval, its longest diameter about 1.6 times as long as the shortest one. Gena very low; its height only about one-eighth to one-sixth of the smallest eye-diameter. Antenna yellowish white to yellow; 3rd segment with white cilia not longer than those of arista. Arista about twice length of antenna, with brown basal segments and blackish, shortly ciliate, terminal seta.

Thorax brown, sparsely but distinctly greyish pollinose and subshining on mesonotum, more dusted and duller on pleurae. Colouring of pleurae variable – from pale yellowish ochreous to brown, thus sometimes distinctly paler than mesonotum, but usually concolorous with it. Thoracic chaetotaxy typical of *Anthomyza* species. 3 postsutural dorsocentral bristles (the anterior short, the posterior very long); about 5 dorsocentral setulae in front of the anterior dorsocentral. Apical scutellar bristle slightly shorter than posterior dorsocentral bristle but lateral scutellar longer than the foremost dorsocentral bristle. 2 strong sternopleural bristles which are subequal in length and a row of pale hairs on sternopleuron. Legs yellow with brownish darkened distal half of apical segment of tarsi. Fore femur with the usual strong posteroventral spine being slightly longer than width of fore tibia. Ventroapical bristle of mid tibia short; hind leg without special armature. Wing long but less narrow than that of *A. gracilis*, more widened in its middle and with apex somewhat more rounded. Wing membrane pale brownish, veins yellowish brown. Venation typical of *Anthomyza* spp., with very long R2+3 and subparallel R4+5 and M1+2. 3rd costal sector (between apices of R2+3 and R4+5) slightly to distinctly longer than 4th (between apices of R4+5 and M1+2). Discal cell not very narrow, with ratio ta-tp:tp being about 2.4–2.6. Wing measurements: length 2.3–2.9 mm, width 0.8–1.0 mm. Haltere whitish to orange yellow.

Abdomen dark brown, sparsely greyish pollinose, subshining. Terga large, extended onto pleural part of abdomen; sterna narrow, pale brownish. 6th tergum bipartite, divided dorsomedially, 6th to 8th sternum dark brown, asymmetrical, situated left laterally (6th and 7th sternum) to dorsally (8th sternum).

Genitalia. Periandrium (Figs. 1, 2) very broad, with 2 pairs of longer setae, otherwise relatively shortly setose. Gonostylus (Figs. 3–5) extremely robust, in lateral view almost as long as periandrium; its external side (Fig. 3) convex and covered by dense micropubescence; internal concave side (Fig. 4) with numerous setulae, particularly at posterior and anterior margins, but several (the longest) are also situated in the middle. Generally, the gonostylus much resembles that of *A. pleuralis* but it is larger, with more dilated apical rounded half; it also possesses an external perpendicular impression at anterior margin and posteriorly an internally curved, thorn-like small projection. Intrapariandrial sclerite (Fig. 1) relatively wide, especially broad ventrally. Cerci weakly sclerotized, pale pigmented and with fine hair-like setae. Internal genitalia (Figs. 6, 7) complex as usual. Hypandrium (Fig. 7, hy) not very robust; pregonites fused with it and bent internally, each with 2–3 closely arising anterior setae and 2 (usually shorter) posterior setae situated on relatively slightly protruding ventral tubercle (Fig. 7, prg). Postgonite (Fig. 7, pg)

slender, pale pigmented, apically rounded, without setulae. Basal membrane (Fig. 7, bm) without spine-like armature, only with various small and pale warts or tubercles; its connecting function is best visible in the erected position of aedeagus (Fig. 7). Aedeagal apodeme (Figs. 6, 7, ap) of the usual form. Aedeagus complex, with small, short, frame-like phallosophore (Fig. 7, pp). Epiphallus not developed. Distiphallus robust, bifid from its basal portion, forming a sclerotized and dark pigmented slender branch (Fig. 7, f) and large, dilatible membraneous saccus (Fig. 7, s). Slender branch of distiphallus band-like, twisted, with simply tapered and pale apex; saccus contracted in the rest position (Fig. 6) but very dilated when erected (Fig. 7), covered by pale membraneous tubercles and internally bearing characteristic coiled stripe. Ejaculatory apodeme (Fig. 6, ea) well developed, somewhat resembling a human foot.

Female. Head, thorax, legs, wing and preabdomen as in male unless mentioned otherwise. Total body length 2.2–3.1 mm. Wing measurements: length 2.6–3.5 mm, width 0.9–1.2 mm. Posteroventral spine on fore femur much longer and thicker than in male. Preabdomen with sterna more narrow.

Postabdomen (Figs. 12–14) telescopic, in dry specimens retracted into 6th segment. 6th to 8th tergum dark pigmented. 6th tergum long, far extended onto pleural part. 7th tergum shorter, posteriorly tapered, laterally extended down to ventral side and its anterior corners almost meeting ventromedially but not fused with 7th sternum. 8th tergum small, forming a transversely oblong plate. 10th tergum (supraanal plate) small, pale pigmented, roundedly triangular, with a pair of long, slightly sinuate setae. 6th sternum normally developed though narrow and pale pigmented. 7th sternum reduced to a very narrow, anteriorly pointed, pale pigmented sclerite, with about 4 longer setae at posterior rounded margin. 8th sternum longitudinally divided into 2 short sclerites, each being medially invaginated into postabdomen to form an external sclerotization of the gonopore. Inside of 8th segment with internal sclerites (Figs. 13, 14, is) which actually serve as sclerotization of lateral walls of uterus (see ANDERSSON, 1976). This structure (Fig. 15) is formed by 2 pale pigmented and somewhat bent sclerites and by a medial elongate „ring“. Spermathecae (Fig. 16) of elongate form, composed of two parts, the basal of which is short, paler and spinulose and the terminal is long, dark, densely, transversely striated and usually with one or more subapical constrictions. The shape of spermatheca is rather variable. 10th sternum (subanal plate) narrow, pale pigmented and tapered posteriorly. Cerci slender, each with 2 longer sinuate hairs and some shorter setae.

Preimaginal stages: Egg (Figs. 9, 10) white to yellowish white, about 0.7 mm long and 0.2 mm wide. Micropyle simple, situated on somewhat projecting front (Fig. 9, mp). Sculpture of chorion different on dorsal and ventral side. Dorsally (Fig. 9) the egg is more flat, with chorion sculptured by very subtle stripes connected in a characteristic net, the meshes of which are very finely dotted (Fig. 8). Ventral surface of egg (Fig. 10) more convex and with several longitudinal furrows; anteriorly there are few additional incomplete, more slender and sinuate

furrows extending over about the anterior fourth of egg. Sculpture of chorion between furrows finely reticulate (Fig. 11).

### Discussion

*Anthomyza macra* CZERNY is very closely related to *A. pleuralis* CZERNY redescribed below. CZERNY (1928) distinguished these two species by different colouring of pleurae; however, this feature proved to be unreliable for identification because in *A. macra* the pleurae may sometimes be pale as in *A. pleuralis*. In fact, both species can be separated with certainty only by the form of the male gonostylus; other differences found are relatively small but do allow identification although with much difficulty – this especially holds for females (see the key under *A. pleuralis*).

Specimens of *A. macra* with dark pleurae (more common form) can easily be misidentified as *A. socculata* (ZETTERSTEDT, 1847), if only external features are used. However, the male and female terminalia of the latter species (see ANDERSON, 1976) are structurally much different from those of *A. macra*. Previously, *A. macra* was considered to be probable synonym of *A. ungulata* LOEW, 1873 (cf. STACKELBERG, 1970) but when ROHÁČEK (1984) recently revised types of this species, *A. ungulata* was found to be synonymous with *A. socculata*. Because *A. macra* has not been collected outside the continental Europe (see below), it is plausible that the records of *A. ungulata* from Great Britain (CZERNY, 1928; COLLIN, 1944; COGAN, 1976\*) all belong to *A. socculata*. On the contrary, the records of *A. ungulata* from Czechoslovakia (ROHÁČEK, 1983) refer to *A. macra*. However, the Polish (TROJAN, 1962) and North European (ELBERG, 1968; STACKELBERG, 1970) records may well apply to any one of the species in question (documentary specimens not seen) although *A. socculata* is more probable.

### Biology

Judging from the material examined, *A. macra* occurs mainly in undergrowth of wet deciduous forests, preferably along brooks and rivers in lowlands and submountains. The flight period of adults ranges from May (first occurrence date 14. 5.) to the beginning of July (last record from 3. 7.). Life habits of larva are unknown.

### Distribution

This poorly known species was previously only recorded from one locality in Austria (Kremsmünster – CZERNY, 1928), one in Roumania (Mehádia – SOÓS, 1946) and from a few in Czechoslovakia (ROHÁČEK, 1983). Almost all new as well

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\*) As noted by COLLIN (1944: 269) the British records of *A. ungulata* are from Scotland, not from England as erroneously stated by CZERNY (1928). All specimens identified by J. E. COLLIN as *A. ungulata* and revised by me (2♂ 6♀ from Scotland: Aviemore, Nairn, Spey Bridge, Inverness-Grantown; deposited in UMO) proved to be *A. socculata* (ZETT.).

as verified records (see the material examined) are also from these countries but there is a new record from southern Sweden. Moreover, a female syntype of *A. pleuralis* from Berlin (GDR) seems to belong to *A. macra*.

*Anthomyza pleuralis* CZERNY, 1928  
(Figs. 17–24)

*Anthomyza pleuralis* CZERNY, 1928: 4; COLLIN, 1944: 268, 271; TROJAN, 1962: 38; STACKELBERG, 1970: 329; SOÓS, 1981: 110; ANDERSSON, 1984: 52.

Type material: Lectotype ♂ (hereby designated) labelled: "Porthcawl 22.6.06 Col-Y." (circular label) and "*Anthomyza pleuralis* CZERNY" (CZERNY's handwriting on oblong label); abdomen detached, genitalia dissected and all parts preserved in plastic microtube in glycerine, pinned below specimen; deposited in UMO. Paralectotypes: 1♀ with same data as for lectotype; 1♂ with same data but collected 9.7.06; 1♀ labelled: "Woodditton Wd 30.V.09" and with determination label by CZERNY as in lectotype (all in UMO); 1♀ heavily damaged (only remnants of thorax and abdomen preserved) and labelled "Berlin, Strausbg., 27.5.01", "*Anthomyza pleuralis* CZERNY", "coll. Oldenberg" and "Typus", "Holotypus 1972" (two last labels red); deposited in IPE. This female is not the holotype (see CZERNY 1928: 5) though it is mentioned at first place in the original description; moreover, it seems to belong to *A. macra* (terminalia examined).

Material examined (besides type specimens) 15♂16♀

Great Britain: 7♂ 5♀ (UMO) – England: Cambs: Chippenham Fen, Woodditton Wood; Suffolk: Barton Mills (all COLLIN leg.); Wales: Glamorgan: Porthcawl (YERBURY leg.); Scotland: Nairn (? YERBURY leg.).

Sweden: 2♀ (ZIL) – Sk: Torup (HANSSON leg.), Kullaberg (ANDERSSON leg.).

Czechoslovakia: 8♂ 8♀ (SMO, TMB, JZP, MBP, OMS, VMZ) – Bohemia: Karlov nr. Mírotice (MÁCA leg.), Nasavrky nr. Tábor (ZUSKA leg.), Týnec n. Labem (MARTINEK leg.); Moravia: Brno-dam (BARTÁK leg.); Slovakia: Pöstyén (= Piešťany) (KERTÉSZ leg.), Muráň-Hrdzavá dolina, Snina-Cirocha shores, Vihorlat-Sninský kameň Mt., Ruský Potok (all ROHÁČEK leg.).

Roumania: 1♀ (TMB) – Körösmező (KERTÉSZ leg.).

### Description

Male: Total body length 1.9–2.6 mm. General colour paler than is usual in *A. macra*, particularly pleurae always yellow to ochreous. Head higher than long, with very indistinctly protruding frons and the same colouring and chaetotaxy as in *A. macra*, including well developed anterior orbital setula and crossed postvertical bristles. Eye large, oval, its longest diameter about 1.5–1.6 times as long as the shortest one. Gena narrow but slightly higher than in *A. macra*, with its smallest height about one fifth of the shortest eye diameter. Antenna yellow, with shortly ciliate 3rd segment. Arista brown to dark brown (apical seta), about 1.9 times as long as antenna and distinctly ciliate (with cilia of the same length as those on 3rd antennal segment).

Thorax with dark brown, subshining, but distinctly sparsely greyish pollinose mesonotum. Humeral callus usually pale brown and pleurae yellowish to ochreous with darkened dorsal parts of mesopleuron and pteropleuron; metapleuron and postnotum usually entirely brownish. Thoracic chaetotaxy as described for *A. macra*. Legs yellow to pale yellowish white, with brownish apical half of last tarsal

segment. Armature of fore femur as in *A. macra*, thus with relatively short posteroventral spine. Wing without differences against that of *A. macra*. Wing measurements: length 2.3–2.8 mm, width 0.7–0.9 mm. Haltere white to whitish yellow.

Abdomen dark brown, relatively sparsely greyish pollinose and rather shining. Terga dark, large, extended laterally; sterna pale and narrow. 6th tergum dorsomedially divided into 2 plates; 6th–8th sternum as in *A. macra*.

Genitalia closely resembling those of *A. macra*. Periandrium (Figs. 17, 18) somewhat narrower in caudal view. Cercus and intraperiandrial sclerite as in *A. macra*, but gonostylus smaller (essentially shorter than periandrial height) and less widened in apical half (see Figs. 17, 19). Also internal genitalia highly similar to those of *A. macra*. Pregonite (Fig. 20) with somewhat less developed posterior tubercle and postgonite slightly wider subterminally. Aedeagal complex (Fig. 21) little different from that of *A. macra*; there are only slight differences in the structure of basal portion of distiphallus and armature of membranous saccus (see Fig. 21,s). Aedeagal apodeme with ventral robust projection arising more distally than in *A. macra*. Ejaculatory apodeme almost identical in both species.

Female: Similar to male except for differences mentioned below. Total body length 2.5–2.9 mm. Wing measurements: length 2.7–3.2 mm, width 0.9–1.2 mm. Posteroventral spine on fore femur much longer and more robust than in male. Preabdomen as well as postabdomen with almost identical formation as in *A. macra*. There are slight differences in the internal sclerites (Figs. 23, 24) but they are of little use for the separation of the species concerned because of their poorly defined form (weak sclerotization). Spermathecae (1+1) also similar in both species but those of *A. pleuralis* with basal portion more shortly spinulose and less distinctly separated from terminal part being usually more sparsely striated. Terminal portion of spermatheca often apically prolonged and with several constrictions (see Fig. 22).

Preimaginal stages: Several gravid females were examined and mature eggs were prepared from their abdomina. However, no difference was detected against the structures described above for eggs of *A. macra*.

## Discussion

*A. pleuralis* CZERNY is the more widespread sister-species of *A. macra* CZERNY. On external features (subshining species with sparse greyish pollination on dark mesonotum and similar colouring of head) these two closely allied species also resemble *A. socculata* (ZETT.), which is more distantly related. All these species can be keyed as follows:

- 1 Pleurae dark, concolorous with mesonotum . . . . . 2
- Pleurae paler (yellow to ochreous) than mesonotum . . . . . 3
- 2 Gonostylus very robust, widened in apical half (Figs. 2–5); slender branch of distiphallus apically simply tapered (Figs. 6, 7). Female 7th abdominal sternum not fused with 7th tergum (Fig. 14); spermathecae elongate, with spinulose base (Fig. 16) . . . . . *A. macra* CZERNY (part.)

- Gonostylus slender, apically tapered, only about half length of periandrial height (ANDERSSON, 1976: Fig. 20); slender branch of distiphallus apically widened, membranous and provided with several teeth (ANDERSSON, 1976: Figs. 15, 18). Female 7th abdominal sternum fused with 7th tergum and so forming a complete ring (ANDERSSON, 1976: Fig. 44, 48); spermathecae shortly pyriform and with basal ring of vesicles (ANDERSSON, 1976: Fig. 37) . . . . . *A. socculata* (ZETT.)
- 3 Gonostylus more widened in apical half and almost as long as periandrial height (Figs. 2-5); ventral projection of aedeagal apodeme situated further from its apex (Figs. 6, 7). Female spermathecae with more distinctly separated basal portion which is longer spinulose (Fig. 16) . . . . . *A. macra* CZERNY (part.)
- Gonostylus less widened in apical half and essentially shorter than height of periandrium (Figs. 17, 19); ventral projection of aedeagal apodeme situated nearer to its apex (Fig. 21). Female spermathecae with less distinctly separated basal portion which is overgrown by shorter spinulae (Fig. 22) . . . . . *A. pleuralis* CZERNY

### Biology

Similar as in *A. macra*. The majority of specimens examined was taken in wet deciduous forests, often along brooks or rivers, sometimes together with *A. macra*. Adults were found to occur from May (first occurrence date 18. 5.) to August (last date 24. 8.) but the bulk of specimens was collected in May and June; later records are scarce. Life-history of *A. pleuralis* is unknown.

### Distribution

*A. pleuralis* is relatively widespread in Europe – it was recorded from Great Britain (CZERNY, 1928; COLLIN, 1944; COGAN, 1976), GDR (CZERNY, 1928), Czechoslovakia (SOÓS, 1946, 1981; ROHÁČEK, 1983), Roumania (SOÓS, 1946, 1981), Poland (TROJAN, 1962), USSR (European part of the USSR, Estonia STACKELBERG, 1970; ANDERSSON, 1984), Sweden (ANDERSSON, 1984), Finland (HACKMAN, 1980; ANDERSSON, 1984). CZERNY'S (1928) record from GDR (♀ paralectotype from Berlin) probably refers to *A. macra* (see notes under the type material of *A. pleuralis*) and also TROJAN'S (1962) findings from Poland should be checked. Most of other published records are reliable, though a few from Central Europe are based on misidentified specimens of *A. macra* (see SOÓS, 1946, ROHÁČEK, 1983).

### General discussion

*Anthomyza macra* and *A. pleuralis* form a sister-pair of very closely allied species which is characterized by several distinct autapomorphies, such as are the enlarged and widened gonostylus, coiled stripe within the saccus of the distiphallus or the elongate spermathecae with spinulose basal portion. However, their relationships to other species of the genus *Anthomyza* is not clear. External characters as well as general formation of the male genitalia of *A. macra* and *A. pleuralis* do not exhibit essential differences against those found in some of species included by ANDERSSON (1976) and ROHÁČEK (1984, 1986) in the *A. gracilis*-group; the only distinct dissimilarity can be found in the structure of the female postabdomen, which is of more ancestral type in the species under study, in having disparate 7th tergum and sternum (see Fig. 14). Nevertheless, when considering comparatively

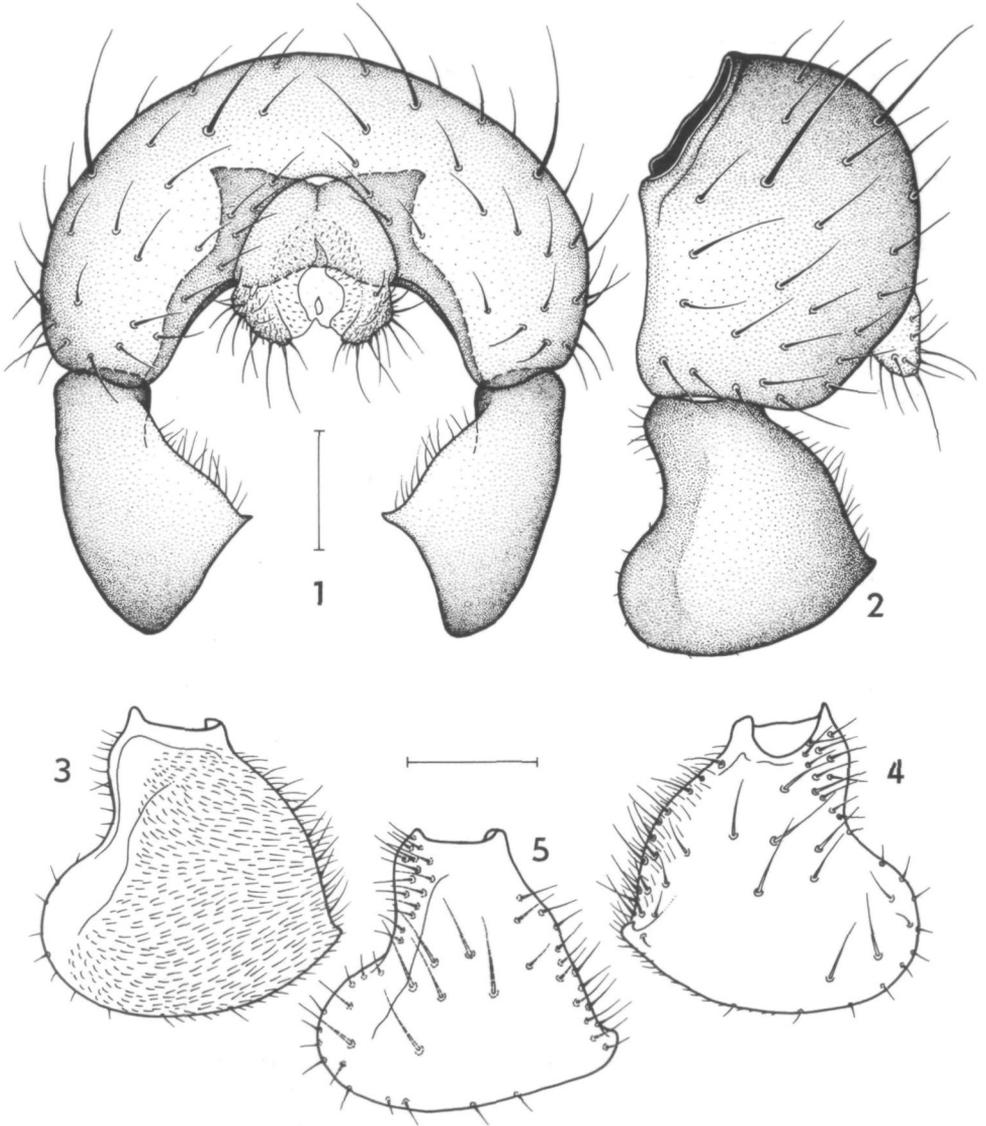
great diversity of features of the male and female terminalia within the *A. gracilis*-group it is possible to include tentatively also *A. macra* and *A. pleuralis* into this group as its relatively primitive members (plesiomorphic features: absence of epiphallus, simple slender branch of distiphallus, saccus without sclerotized spines, unarmed basal membrane, female 7th abdominal tergum and sternum not fused into tergo-sternal complex). In any case, even without the above species, the *A. gracilis*-group appears to be an artificial unit containing a number of sister-pairs which are not closely related to each other (see ROHÁČEK, 1984, 1986). A redefinition of the *A. gracilis*-group, based on sound synapomorphies, is much needed but it will be possible only when all species of *Anthomyza* are thoroughly known (including the postabdominal structures).

#### Acknowledgements

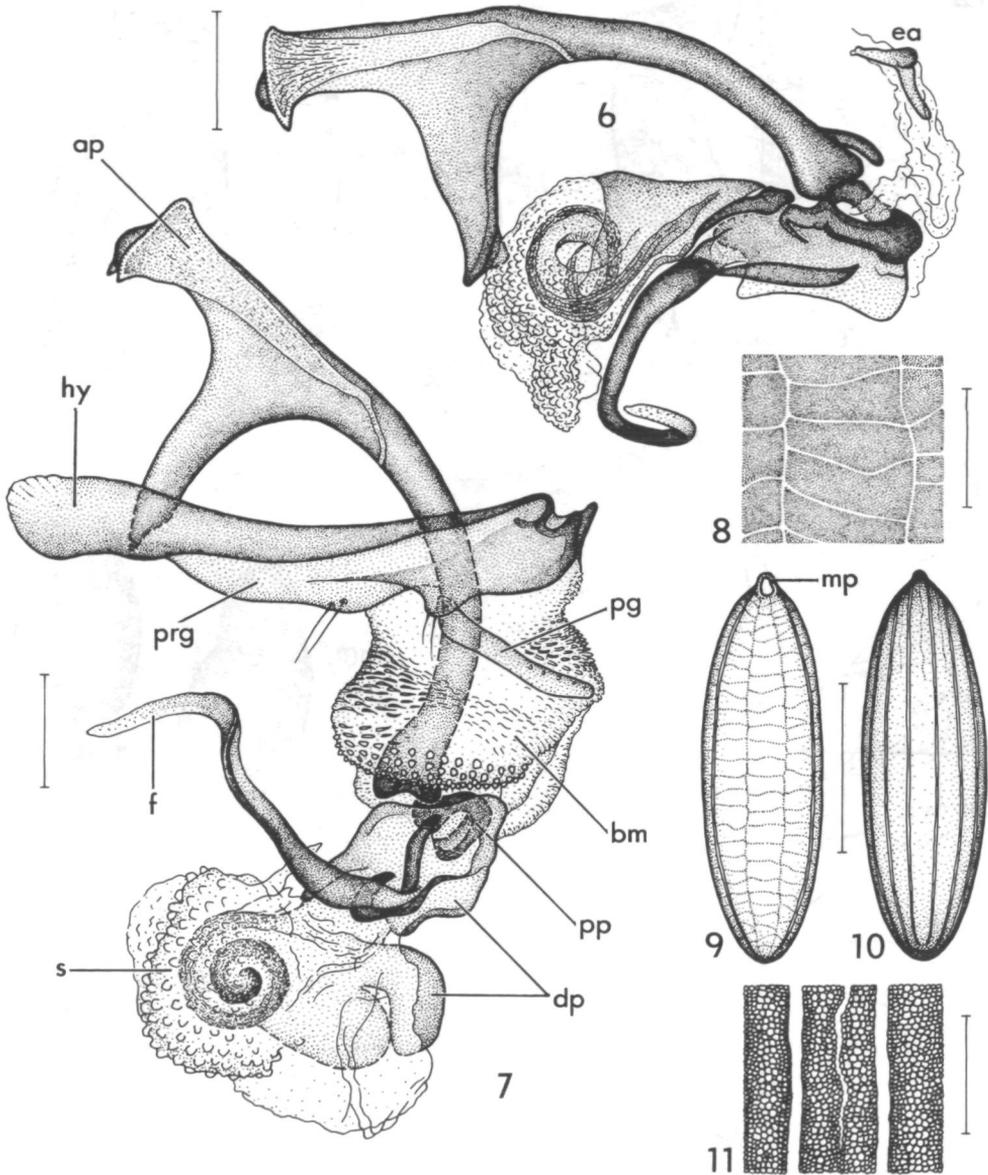
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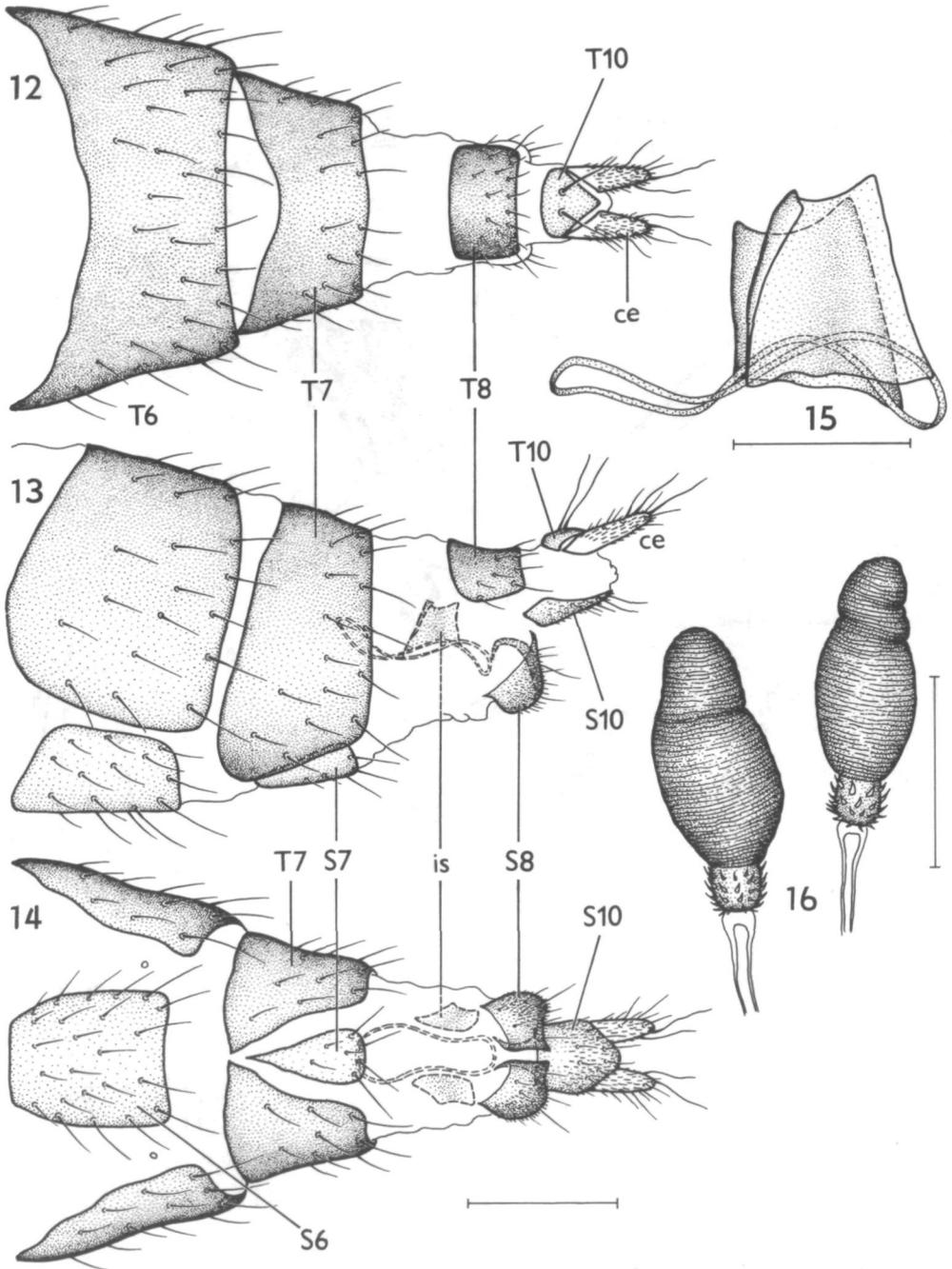
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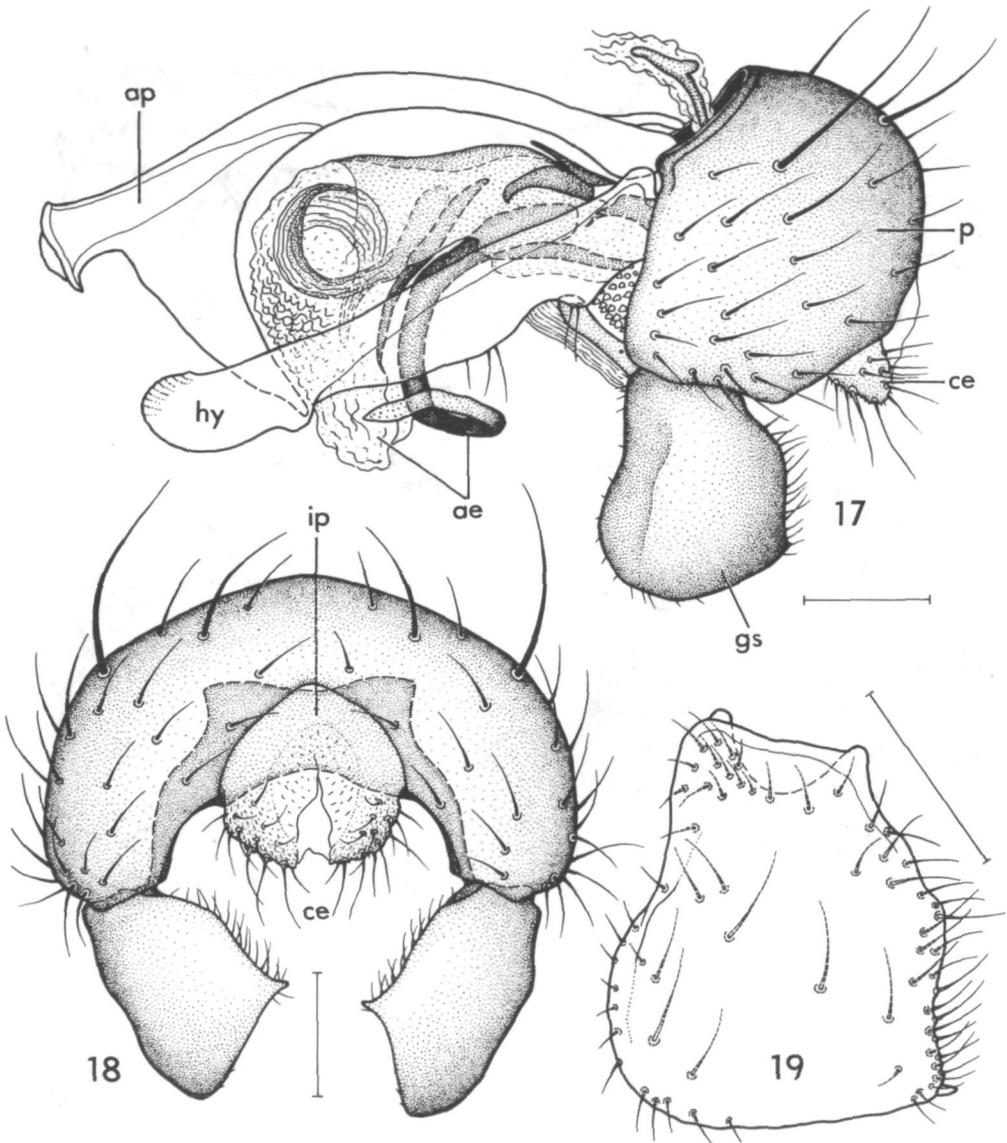
Figs. 1-5. *Anthomyza macra* CZERNY: 1 - external genitalia caudally, 2 - ditto laterally, 3 - gonostylus sublaterally externally (in the widest extension), 4 - same internally (Figs. 1-4 based on males from Czechoslovakia), 5 - gonostylus sublaterally externally (paralectotype; micropubescence omitted). Scales 0.1 mm.



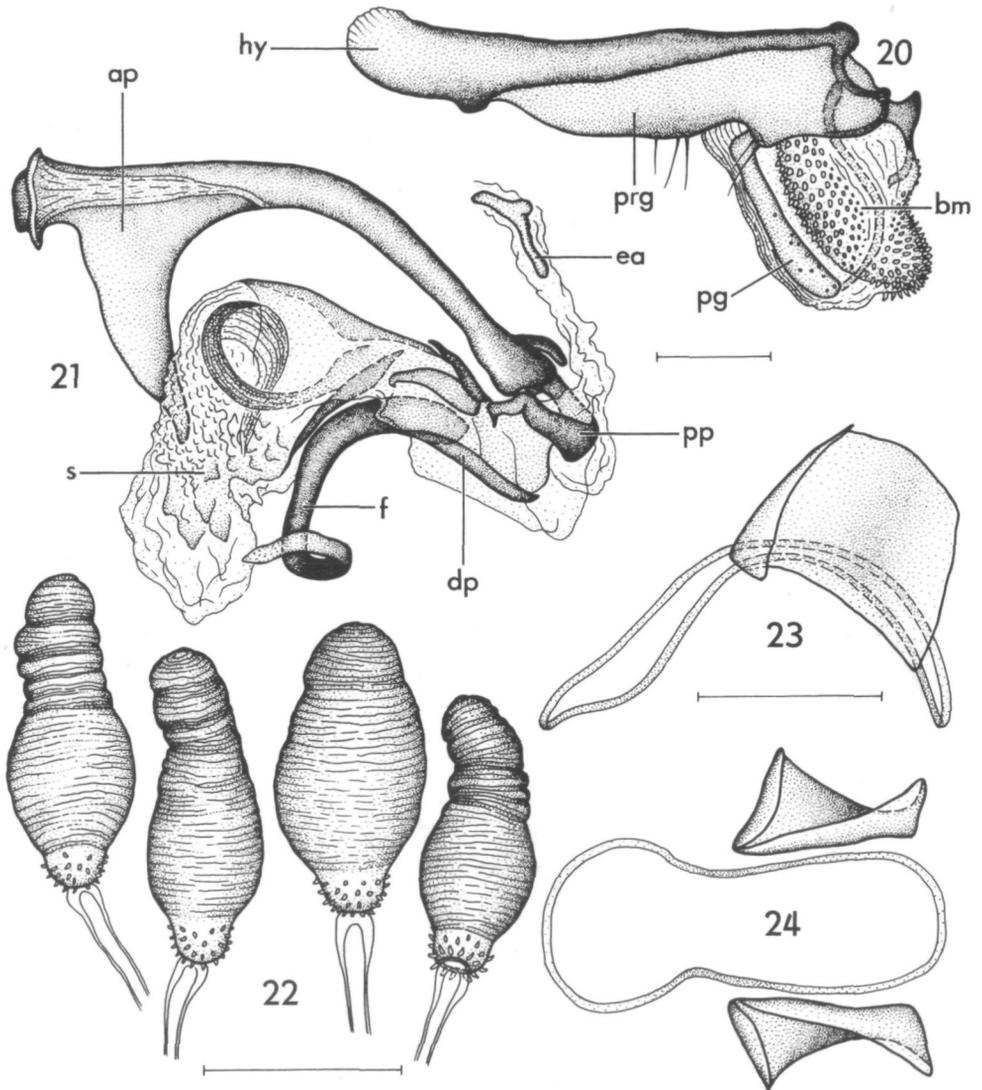
Figs. 6-11. *Anthomyza macra* CZERNY: 6 - aedeagal apodeme and aedeagus in rest position laterally ( $\delta$ , Czechoslovakia), 7 - internal genitalia in erected position laterally ( $\delta$ , paralectotype), 8 - dorsal sculpture of egg chorion, 9 - egg dorsally, 10 - ditto ventrally, 11 - ventral sculpture of egg chorion (Figs. 8-11 based on eggs prepared from females, Czechoslovakia). Abbreviations: ap - aedeagal apodeme, bm - basal membrane, dp - distiphallus, ea - ejaculatory apodeme, f - slender branch of distiphallus, hy - hypandrium, mp - micropyle, pg - postgonite, pp - phallosophore, prg - pregonite, s - saccus of distiphallus. Scales: Figs. 6, 7 = 0.1 mm, Figs. 9, 10 = 0.3 mm, Figs. 8, 11 = 0.05 mm.



Figs. 12–16: *Anthomyza macra* CZERNY (♀ paralectotype): 12 – postabdomen dorsally, 13 – dtto laterally, 14 – dtto ventrally, 15 – internal sclerites laterally, 16 – spermathecae. Abbreviations: ce – cercus, is – internal sclerites, S – sternum, T – tergum. Scales: Figs. 12–14 = 0.2 mm, others = 0.1 mm.



Figs. 17–19. *Anthomyza pleuralis* CZERNY (♂, lectotype): 17 – genitalia laterally (of the internal genitalia only aedeagus, postgonite and ejaculatory apodeme dotted), 18 – external genitalia caudally, 19 – gonostylus sublaterally (in the widest extension; micropubescence omitted). Abbreviations: ae – aedeagus, ap – aedeagal apodeme, ce – cercus, gs – gonostylus, hy – hypandrium, ip – intraperiandrial sclerite, p – periandrium. Scales 0.1 mm.



Figs. 20–24. *Anthomyza pleuralis* CZERNY: 20 – hypandrium and associated structures laterally, 21 – aedeagal apodeme and aedeagus laterally (both based on lectotype), 22 – spermathecae, 23 – internal sclerites laterally, 24 – dtto ventrally (Figs. 22–24 based on females from G. Britain). Abbreviations: ap – aedeagal apodeme, bm – basal membrane, dp – distiphallus, ea – ejaculatory apodeme, f – slender branch of distiphallus, hy – hypandrium, pg – postgonite, pp – phallosome, prg – pergonite, s – saccus of distiphallus. Scales 0.1 mm.