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Revision of the European species of the genus *Astiphromma* Förster, 1869

(Hymenoptera, Ichneumonidae, Mesochorinae)

Matthias Riedel

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The European species of the genus *Astiphromma* Förster, 1869 are revised. 26 taxa are accepted as valid and keyed, described, and figured. One further European species described by Schwenke, *Astiphromma peltolatum,* has not been studied, because the type could not be located for the revision.

Two species and one subspecies are described as new: *Astiphromma flagellator* spec. nov., *Astiphromma flavoventrale* spec. nov., and *Astiphromma nigriceps asiaticus* subspec. nov. The male of *Astiphromma uliginosum* Schwenke, 1999 is described for the first time here.

The following new synonyms are established: *Astiphromma barbatum* Schwenke, 1999 and *Astiphromma caecum* Schwenke, 1999 are new synonyms of *Astiphromma aggressor* (Fabricius, 1804); *Astiphromma dispersum* Schwenke, 1999 and *Astiphromma laricis* Schwenke, 1999 are new synonyms of *Astiphromma alpinum* Roman, 1909; *Mesochorus* (*Astiphrommus*) *hamulus* Thomson, 1886 and *Astiphromma consertum* Schwenke, 1999 are new synonyms of *Astiphromma buccatum* (Thomson, 1886); *Mesochorus* (*Astiphrommus*) *graniger* Thomson, 1886 is a new synonym of *Astiphromma hirsutum* (Bridgman, 1883); *Astiphromma contum* Schwenke, 1999 is a new synonym of *Astiphromma italicum* Schwenke, 1999; *Astiphromma intermedium* Constantineanu & Mustata, 1976 is a new synonym of *Astiphromma scutellatum* (Gravenhorst, 1829); *Mesochorus* (*Astiphrommus*) *mandibularis* Thomson, 1886 is a new synonym of *Astiphromma striatum* (Brischke, 1880); and *Astiphromma trimaculosum* Schwenke, 2004 is a new synonym of *Astiphromma uliginosum* Schwenke, 1999.

In dieser Arbeit werden die europäischen Arten der Gattung *Astiphromma* Förster, 1869 revidiert. 26 Taxa werden als valide betrachtet, beschrieben und abgebildet. Außerdem wird ein Bestimmungsschlüssel für diese Arten gegeben. Eine weitere europäische, von Schwenke beschriebene Art, *Astiphromma peltolatum,* konnte nicht untersucht werden, da das Typenmaterial nicht auffindbar war.

Zwei Arten und eine Unterart werden neu beschrieben: *Astiphromma flagellator* spec. nov., *Astiphromma flavoventrale* spec. nov., und *Astiphromma nigriceps asiaticus* subspec. nov., außerdem das bisher unbekannte Männchen von *Astiphromma uliginosum* Schwenke, 1999.

Folgende Synonyme werden festgestellt: *Astiphromma barbatum* Schwenke, 1999 und *Astiphromma caecum* Schwenke, 1999 sind neue Synonyme zu *Astiphromma aggressor* (Fabricius, 1804); *Astiphromma dispersum* Schwenke, 1999 und *Astiphromma laricis* Schwenke, 1999 sind neue Synonyme zu *Astiphromma alpinum* Roman, 1909; *Mesochorus* (*Astiphrommus*) *hamulus* Thomson, 1886 and *Astiphromma consertum* Schwenke, 1999 sind neue Synonyme zu *Astiphromma buccatum* (Thomson, 1886); *Mesochorus* (*Astiphrommus*) *graniger* Thomson, 1886 ist ein neues Synonym zu *Astiphromma hirsutum* (Bridgman, 1883); *Astiphromma contum* Schwenke, 1999 ist ein

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neues Synonym zu *Astiphromma italicum* Schwenke, 1999; *Astiphromma intermedium* Constantineanu & Mustata, 1976 ist ein neues Synonym zu *Astiphromma scutellatum* (Gravenhorst, 1829); *Mesochorus* (*Astiphrommus*) *mandibularis* Thomson, 1886 ist ein neues Synonym zu *Astiphromma striatum* (Brischke, 1880); und *Astiphromma trimaculosum* Schwenke, 2004 ist ein neues Synonym zu *Astiphromma uliginosum* Schwenke, 1999.

Matthias Riedel, Amselweg 9A, 29683 Bad Fallingbostel, Germany;
e-mail: mamaflo.riedel@t-online.de

Introduction

The European species of the Mesochorinae genus *Astiphromma* Förster, 1869 have recently been revised by Schwenke (1999) with some additional material that he published in 2004. Although his work represents a landmark study for the taxonomy of European Mesochorinae, the determination keys and descriptions of taxa are very short and not supplemented by illustrations. Since some taxa were described from one or very few specimens, the intraspecific variability of structure and colour patterns could not been addressed sufficiently. For several species, only one sex has been described, and the opposite sex is unknown yet.

Although Horstmann (2006) has re-described some European taxa and corrected their nomenclature, it seemed necessary to study the European material of *Astiphromma* again and to present a new and illustrated key for a reliable identification of the different species in the Western Palearctic region.

Generic classification of European Mesochorinae

In accordance to the traditional concept of European entomologists, Schwenke (1999) differentiated seven genera of European Mesochorinae and described an additional genus, *Planochorus* in a subsequent publication (Schwenke 2004). In a cladistic analysis of the world genera of Mesochorinae, Wahl (1993) placed the genus *Stictopisthus* back as a synonym of *Mesochorus*, and synonymized *Mesochorella* and *Dolichochorus* with *Astiphromma* considering the presence of the dorsolateral carina as an autapomorphy of *Astiphromma*. Although Schwenke (1999, 2000) stated that the dorsolateral carina of first tergite is lacking in *Mesochorella*, this carina is visible at least behind the spiracle and/or at the apical margin in my available material (see Fig. 3). It was suggested by Broad (2011) that his preliminary results of coding *A. longiceps* for Wahl's characters give some hints for a polyphyletic *Astiphromma* if this taxon is included.

Here, I propose three subgenera *Astiphromma* s. str., *Mesochorella*, and *Dolichochorus* within the genus *Astiphromma* sensu lato with the common character of a partly or completely developed dorsolateral carina on the postpetiole. Also, the nervellus in the hind wing is intercepted in all species, though the discoidella is not always visible. However, a closer cladistic analysis including larval characters and molecular data will certainly give more information on the phylogenetic relationship of the mentioned genera.

I have not seen and studied any material of the genus *Planochorus* which was established by Schwenke (2004). His type material is not deposited in the ZSM nor in the collection of Zwakhals (as it was erroneously published in the original description). According to his description, the characteristics of this genus are a plane dorsal surface of the mesosoma, a long coxa III, and whitish orbits of the head. Additionally, the lower mandibular tooth is larger than the upper one, and the nervellus of hind wing is not clearly intercepted (e. g. discoidella not developed). Whether this species belongs to *Astiphromma* in the wider sense or not, cannot be decided yet.

Biology of *Astiphromma*

All known European species of *Astiphromma* are hyperparasitoids of different hosts. The primary hosts are usually larvae of Lepidoptera and Symphyta (Hymenoptera). However, at least one taxon, *Astiphromma nigriceps* (Brischke) has been found in adult Coleoptera (Chrysomelidae) (Schwenke 2000) but the primary parasitoide is unknown for this taxon.

The *dorsale* group of *Astiphromma* characterized by the pointed scutellum was found in combination of Tachinidae (Diptera) as primary parasitoids where the specialized form of scutellum is used to emerge from the Tachinid pupa. The other *Astiphromma* species from Europe have been reared together with several Braconidae and Ichneumonidae as primary parasitoids.

Variability of *Astiphromma* species

Some species of the genus *Astiphromma,* such as *A. aggressor* (Fabricius) and *A. splenium* (Curtis) show a large variability in size, colour, and structural details. Therefore, many morphological features used for separation of different taxa by former authors (e. g. Lee 1992, Schwenke 1999, 2004) are not reliable if

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one studies a larger assemblage of specimens. In my opinion, the species concepts defined by just a single holotype were sometimes separating individual variants (e. g. *A. caecum*, *A. barbatum*, *A. consertum*, *A. laricis*, *A. trimaculosum*, all described by Schwenke) of common taxa only.

One the other hand, the above mentioned widely variable species of *Astiphromma* might represent in fact species groups which have to be closer defined by rearing experiments and molecular data in the future.

Material and methods

Measurements and indices

FEI (flagellar-eye index): relation of length of first flagellomere (without anellus) to length of compound eye.
MI (malar index): relation of length of malar space to the width of mandibular base.
OOD (ocular-ocellar distance): relation of the distance of the lateral ocellus to the compound eye to its diameter.
RI (radial index): relation of length of anterior margin of radial cell to length of pterostigma.
TEI (temple-eye index): relation of the width of temple to the width of compound eye (seen from lateral).

Material

For the distributional records below I used the personally studied material only, new records are marked by asterisks. The following collections have been studied: Coll. Artmann, Arsten/Switzerland (CA), Coll. Giovanni, Verona/Italy (CG), Coll. Jussila, Paattinen/Finland (CJ), Coll. Riedel, Bad Fallingbostel/Germany (CR), Coll. Schwarz, Linz/Austria (CS), Coll. Schnee, Markkleeberg/Germany (SCHNEE), Coll. Varkonyi, Kuhmo/Finland (CV), Coll. Zwakhals/The Netherlands (CZ), National Museums of Scotland, Edinburgh/Scotland (EDI), University Erzurum/Turkey (ERZ), Musee de Zoologie Lausanne/Switzerland (LAU), Biozentrum Linz/Austria (LINZ), Natural History Museum, London/England (NHM), Swedish Museum of Natural History, Stockholm/Sweden (STOCK), Museum of Zoology, Warszawa/Poland (WARS), Zoologische Staatssammlung Munich/Germany (ZSM).

Identification key of European *Astiphromma* Förster, 1869

Key for ♀♀

1. Scutellum pointed apically (rarely scutellum slightly pointed or seemingly rounded). Dorsolateral carina of postpetiole running ventral to spiracle (Fig. 1). Occipital carina dipped medially, occiput here more or less impressed. .... *dorsale* group 2.

– Scutellum rounded apically. Dorsolateral carina of postpetiole running at the same level or dorsal to spiracle (Fig. 2). Occipital carina not dipped medially, occiput not impressed. ..... 3.

2. Body stouter. Ovipositor sheath 5.0–7.5 × as long as wide (Fig. 73). Hind leg stout: femur III 3.8–5.1 × as long as wide, metatarsus III 6–7.5 × as long as wide and 0.40–0.42 × as long as tibia III. Lower half of mesopleurum usually with very scattered to scattered punctation (rarely with denser punctures) (Fig. 105). Tarsus III often infuscate. Claw III with strongly curved tip (Fig. 61). Flagellum often infuscate or brownish-red. ..... *A. dorsale* (Holmgren, 1860)

– Body slender. Ovipositor sheath slender, stab-shaped, 7.5–9.5 × as long as wide (Fig. 74). Hind leg slender: femur III 5.0–5.6 × as long as wide, metatarsus III 8–9 × as long as wide and 0.45–0.5 × as long as tibia III. Lower half of mesopleurum usually with scattered to dense punctation (Fig. 106). Tarsus III usually yellowish–brown. Claw III with less curved tip (Fig. 58). Flagellum often completely or basally yellowish. .... *A. hirsutum* (Bridgman, 1883)

3. Inner spur of tibia III very short, about 0.25–0.3 × as long as metatarsus III. Head and mesosoma with coarse and dense punctures. Lower mandibular tooth much larger than the upper one (Fig. 49). Temple seen from dorsal with parallel sides behind the eye (Fig. 17). Dorsolateral carina of postpetiole developed in part only (usually visible apically) (Fig. 3). .... *A. nigriceps* (Brischke, 1880)

– Inner spur of tibia III at least 0.4 × as long as metatarsus III. Punctation of head and mesosoma less coarse and dense. Mandibular teeth often of equal size. Dorsolateral carina of postpetiole strong (Fig. 2). ..... 4.

4. Head seen from frontal almost triangular (Fig. 35). Malar space very long, slightly longer than the width of mandibular base (Fig. 35). Flagellum long and slender, first flagellomere about 1.0–1.1 × as long as the eye. Face cream-yellow, with a median w-sized blackish spot. .. .. *A. longiceps* (Strobl, 1904)

– Head seen from frontal more or less quadrangular. Malar space shorter than the width of mandibular base. Flagellum usually less slender, first flagellomere at most 0.8 × as long as eye. Face with different coloration. ..... 5.

5. Postpetiole completely with longitudinal striation or rugae (rarely the striation is indistinct) (Figs 122, 123). Second tergite without distinct

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thyridium or small thyridium at basal margin only. ..... 6.

– Postpetiole at most with some striae at its apical margin. If the striation is more pronounced (in *A. leucogrammum* and *A. tenuicorne*, Figs 124, 125), then face completely yellow and mesopleurum two-coloured: reddish-yellow below and black above. Thyridium of second tergite usually distinct, at some distance from the basal margin. ..... 9.

6. Mesopleurum mainly reddish, often with yellow stripes or spots. Lower mandibular tooth longer than the upper one (as Fig. 66). Hypostomal carina elevated. Nervulus more or less interstitial. Head and mesopleurum densely and coarsely punctate (Fig. 39). Temples parallel behind the eyes. ..... *A. pictum* (Brischke, 1880)

– Mesopleurum mainly blackish, often with a small yellowish spot below. Mandibular teeth of the equal size. Hypostomal carina not elevated. . 7.

7. Tergites 2 and 3 more or less reddish. Face yellowish except a central blackish spot (Fig. 40). Head and mesopleurum with coarse and dense punctation, temple with distinct punctures. Postpetiole strongly widened (Fig. 124). Temple broad behind eye, TEI 1.0–1.1. .... *A. rimosum* Schwenke, 1999

– Metasoma blackish, with transverse yellowish stripes on hind margins of tergites 2–7. Head with superficial puncture, temple with superficial punctures, granulate. ..... 8.

8. Face mainly black, only clypeus, lower facial orbits and lower gena yellowish (Fig. 36). Mesopleurum ventrally with dense but fine punctation. Mesosternum black, at most with a yellowish spot. Temple narrower, TEI 0.8–0.9. .... *A. luridum* Schwenke, 1999

– Face yellow, with a large rectangular median black spot below antenna (Fig. 31). Mesopleurum rugulose-punctate ventrally, matt. Mesosternum yellow (Fig. 107). Temple wider, TEI 1.1. .... *A. flavoventrale* spec. nov.

9. Face completely yellowish (Figs 26, 27, 34, 44). ..... 10.

– Face black, sometimes with yellow colour pattern in the lower half. ..... 14.

10. Lower mandibular tooth much larger than the upper one. Metatarsus III with apical rings of stout bristles (Fig. 50). Trochantellus III ventrally flattened and with edged sides (Fig. 51). . ..... *A. striatum* (Brischke, 1880)

– Mandibular teeth of equal size. If lower tooth slightly larger (in *A. tenuicorne*), then metatarsus III without apical ring of bristles. Trochantellus III not flattened ventrally, normally rounded. . ..... 11.

11. Mesopleurum black. .... *A. anale* (Holmgren, 1860)

– Mesopleurum with red and/or yellow colour pattern. ..... 12.

12. Mesopleurum with 3 or 4 different colours: ivory, yellow, reddish and more or less black in spot-like distribution, the black colour covers the dorsal 0.2 only. Femur III stouter, less than 5× as long as wide. Ovipositor sheath stout, about 6–7× as long as wide, reddish (Fig. 87). Propodeum with faint costula. .... *A. simplex* (Thomson, 1886)

– Mesopleurum two-coloured: black above and reddish below, with sharp border between both colours. Ovipositor sheath slender, more than 8× as long as wide (Figs 78, 89). Postpetiole with some longitudinal striae apically (Figs 124, 125). Femur III slender, more than 5× as long as wide. Nervulus interstitial. ..... 13.

13. Striation of postpetiole more extensive, usually in more than the apical half (Fig. 125). Coxa III often with a brownish dorsal spot at apex. Pterostigma brown. Radial cell shorter, the anterior margin at most 1.1× as long as the pterostigma. Costula usually faint. .... *A. leucogrammum* (Holmgren, 1860)

– Striation of postpetiole less extended, distinct in the apical third only (Fig. 124). Coxa III reddish-yellow, without a brownish spot dorsally. Pterostigma hyaline-brownish. Radial cell longer, its anterior margin distinctly longer than the pterostigma (1.2–1.4×). Costula usually distinct. .... *A. tenuicorne* (Thomson, 1886)

14. Clypeus completely and at least the lower third of face more or less yellow-red or red (Figs 24, 46, 47). Preapical flagellomeres short (about 1.5× as long as wide), the apical one usually blunt. . ..... 15.

– Clypeus partly, and face mainly black, at most around mouth narrowly yellowish or reddish. Preapical flagellomeres often slender (about 2× as long as wide). ..... 16.

15. Lateral cream-yellow spots on face usually long, about ⅔ as long as the face (Fig. 46), but sometimes less developed (Fig. 47). Tergite 3 with yellow median stripe, following tergites dark-

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ened basally and light apically (vespoid colour pattern). ..... *A. tridentatum* Schwenke, 1999

– Lateral cream-yellow spots shorter, usually about 1/3 as long as the face (Fig. 24). Tergites mainly black, tergite 3 without median yellowish stripe, apical tergites black. .... *A. alpinum* Roman, 1909 (here probably runs *A. peltolatum* Schwenke, 2004: close to *dispersum*, but larger (7 mm), Lateral margins of face divergent ventrally, clypeus reddish, face completely black. Mesosoma black, tergites black with narrow yellowish apical margins. Wing venes blackish. OOD 2.0. Ovipositor sheath shorter than metatarsus III.)

16. Tergites 4–7 often completely red. If apical tergites more or less darkened (var. *sericans*), then femur III diffusely darkened in the apical half (Fig. 21). Claw III with strong teeth, usually the basal teeth longer than the apical ones. .... *A. splenium* (Curtis, 1833)

– Tergites 4–7 black or more or less reddish. .... 17.

17. Coxa III more or less blackened, femur III brown or blackish. ..... 18.

– Coxa III red, at most with a brownish dorsal tinge. If coxa III almost completey brownish (in A. flagellator spec. nov.), then femur III completely reddish-yellow. ..... 19.

18. Smaller, body length 5–6 mm. Ovipositor sheath stab-like, slightly bent dorsally at apex (Fig. 83). Scutellum not carinate. Nervulus interstitial. ... . *A. nigrocoxatum* (Strobl, 1904)

– Larger, body length 8–11 mm. Ovipositor sheath wider (Fig. 68). Scutellum with strong lateral carina, at least in the basal half (Fig. 63). Nervulus postfurcal. ..... *A. albitarse* (Brischke, 1880)

19. Genal carina joining the hypostomal one at mandibular base or very close to it (at most 1/3 of malar length) (Fig. 5). Lower mandibular tooth larger than the upper one (Fig. 66). ..... 20.

– Genal carina joining the hypostomal one more or less distant from mandibular base (at least half of malar length) (Fig. 4). Lower mandibular tooth at most slightly larger than the upper one or both teeth of equal size. ..... 21.

20. Temple strongly narrowed behind eye, TEI 0.6 (Fig. 7). Lower half of mesopleurum with scattered fine puncture. Postpetiole not punctate, smooth. Femur III stout, 3.3–4.0 × as long as wide. Scutellum often with lateral carina in the basal 0.3. ..... *A. italicum* Schwenke, 1999

– Temple wider, parallel or widened behind eyes, TEI 0.9–1.1 (Fig. 10). Lower half of mesopleurum very densely punctate. Postpetiole with fine punctures. Femur III slender, 4.1–4.7 × as long as wide. Scutellum not carinate. .... *A. buccatum* (Thomson, 1886)

21. Femur III dark brown to black. Ocelli large, OOD 0.8–1.0 (Fig. 20). ..... *A. varipes* (Holmgren, 1860)

– Femur III reddish. Ocelli smaller, OOD usually >1.0. ..... 22.

22. Coxae II and III more or less brownish. Flagellum very short, preapical flagellomeres at most slightly longer than wide (Fig. 65)..... ..... *A. flagellator* spec. nov.

– Coxae II and III reddish or yellowish-red, at most coxa III with dorsal brownish spot. Flagellum often slender, preapical flagellomeres distinctly (usually 1.5–2 ×) longer than wide. ..... 23.

23. Mesosternum, mesopleurum and scutellum more or less reddish. Tarsus III, ovipositor sheath and basal flagellomeres usually blackish. Nervulus of front wing usually interstitial or slightly postfurcal. ..... *A. scutellatum* Gravenhorst, 1829

– Mesosoma mainly black, at most lower mesopleurum and scutellum with diffuse dark reddish suffusion (Fig. 104). Tarsus III often reddish, nervulus more or less postfurcal. ..... 24.

24. Apical tergites with vespoid (dark/pale) colour pattern (Fig. 118). Smaller, body length 4–6 mm. Mesopleurum smooth. Frons, vertex and temple with scattered and superficial puncture. Radial cell longer, about 1.2 × as long as pterostigma at anterior margin. Ovipositor sheath long and slender, 7.7–8.4 × as long as wide (Fig. 91). area superomedia behind costula with narrowed sides apically. ..... *A. uliginosum* Schwenke, 1999

– Apical tergites more or less blackish. Ovipositor sheath usually stouter (not more than 7 × as long as wide) (Figs 67, 72). ..... 25.

25. Temple slightly narrowed behind eye, TEI 0.8–0.9. Tarsus III usually infuscate. ..... *A. diversum* Schwenke, 1999

– Temple strongly narrowed behind eye, TEI 0.7–0.8. Tarsus III usually pale brownish or reddish, Ovipositor sheath blackish. .... *A. aggressor* (Fabricius, 1804)

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Key for ♂♂:

(♂♂ of *A. peltolatum*, *A. flavoventrale*, *A. flagellator* and *A. longiceps* are unknown.)

1. Scutellum pointed apically (rarely scutellum seemingly rounded). Dorsolateral carina of postpetiole situated ventrally of the spiracle (Fig. 1) Occipital carina medially dipped, occiput here more or less impressed. .... *dorsale* group 2.

– Scutellum rounded apically. Dorsolateral carina of postpetiole situated at the same level or dorsally to the spiracle (Fig. 2). Occipital carina medially not dipped, occiput not impressed. ... . 3.

2. Mesopleurum with very scattered weak puncture. Face wider, its minimal width about 0.85–0.95 × eye length. Flagellum often infuscate. .... *A. dorsale* (Holmgren, 1860)

– Mesopleurum with scattered to dense punctation. Face narrower, its minimal width 0.8–0.85 × eye length. Flagellum usually yellowish or reddish-brown. .... *A. hirsutum* (Bridgman, 1883)

3. Clypeus and face black. Head and mesosoma with coarse and dense punctation. Lower mandibular tooth much larger than the upper one. Temple seen from dorsal with parallel sides behind the eye. Inner spur of tibia III very short, about 0.25–0.3 × as long as metatarsus III. .... *A. nigriceps* (Brischke, 1880)

– Clypeus and face completely or mainly yellow. Lower mandibular tooth sometimes larger than the upper one or equally sized. Inner spur of tibia III at least 0.4 × as long as metatarsus III. ..... 4.

4. Postpetiole with more or less strong longitudinal striation (if in *A. luridum* sometimes obsolete, then pronotum completely yellowish) (Figs 122, 123). ..... 5.

– Postpetiole usually smooth, at most with some fine striae at its apical half (if in *A. leucogrammum* and *A. tenuicorne* with some striation, then pronotum partly blackish) (Figs 124, 125). ..... 7.

5. Tergites 3 and 4 mainly reddish. .... *A. rimosum* Schwenke, 1999

– Tergites 3 and 4 black, with narrow ivory apical margins. ..... 6.

6. Mesopleurum mainly reddish. .... *A. pictum* (Brischke, 1880)

– Mesopleurum yellowish ventrally and black dorsally (as Fig. 108). .... *A. luridum* Schwenke, 1999

7. Lower mandibular tooth larger than the upper one. Genal carina joining the hypostomal one distant from mandibular base (Fig. 4). Metatarsus III with apical ring of stout bristles (Fig. 50). Trochantellus III ventrally flattened, with edged sides (Fig. 51). ..... *A. striatum* (Brischke, 1880)

– Mandibular teeth of equal size. If lower tooth slightly larger than the upper one (*A. italicum* and *A. buccatum*), then genal carina joining the hypostomal one at or close to mandibular base (Fig. 5). Metatarsus III usually without apical ring of stout bristles. Trochantellus III rounded ventrally. ..... 8.

8. Genal carina joining the hypostomal one at or close to mandibular base (Fig. 5). Lower mandibular tooth slightly larger than the upper one. ..... 9.

– Genal carina joining the hypostomal one far from the mandibular base (Fig. 6). Mandibular teeth usually of equal size. ..... 10.

9. Mesosoma mainly black, only pronotum reddish or reddish-brown. Femur III stout, 3.3–4.0 × as long as wide. ..... *A. italicum* Schwenke, 1999

– Mesoscutum anterolateral with large yellowish hook-like spots. Femur III slenderer, 4.1–4.7 × as long as wide. ..... *A. buccatum* (Thomson, 1886)

10. Coxa III mainly blackish or dark brown. ..... 11.

– Coxa III yellowish-red. ..... 12.

11. Larger species, body length 8–11 mm. Clasper long and stab-like, about as long as the second and half of the third tarsomere III together (as in Fig. 101). Scutellum often with lateral carina in the basal half (Fig. 63). Tarsus III cream-yellow. ..... *A. albitarse* (Brischke, 1880)

– Smaller species, body length 5–6.5 mm. Clasper shorter, about as long as the second tarsomere III, apically slightly thickened (Fig. 99). Scutellum not carinate. Tarsus III reddish or infuscate. .... *A. nigrocoxatum* (Strobl, 1904) (here runs probably also the unknown ♂ of *A. flagellator* spec. nov.)

12. Femur III mainly brownish or black. Ocelli large, OOD 0.8–1.0. ..... *A. varipes* (Holmgren, 1860)

– Femur III reddish or yellowish-red, at most with brownish suffusion dorsally or apically. Ocelli smaller, OOD > 1.0. ..... 13.

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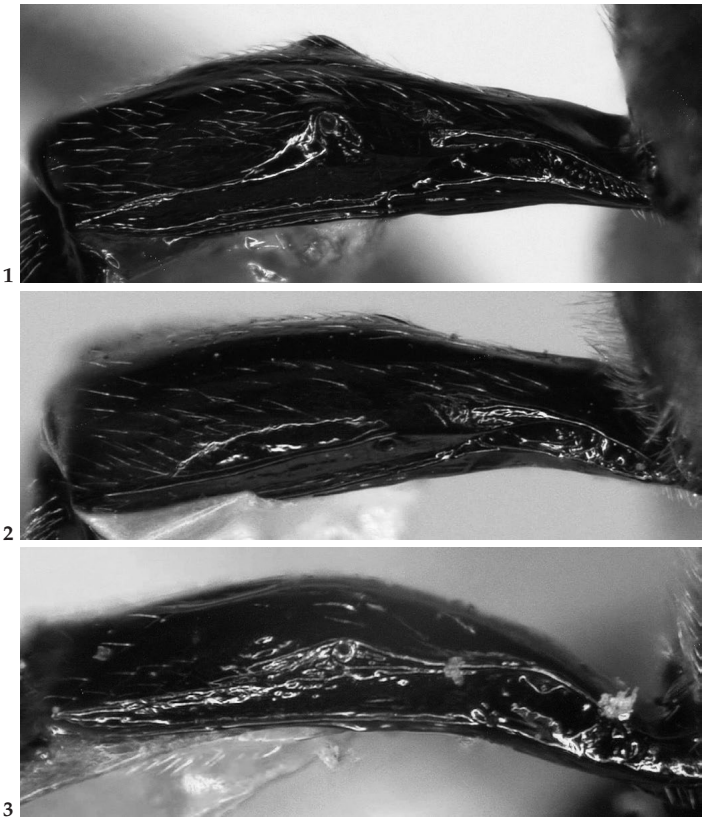

Figs 1–3. Dorsolateral carinae of first tergites of: **1.** *A. dorsale* (Holmgren) ♀; **2.** *A. splenium* (Curtis) ♀; **3.** *A. nigriceps* (Brischke).

13. Clasper long, distinctly longer than second tarsomere III (Fig. 101). Often larger species, up to 10 mm. ..... 14.

– Clasper shorter, at most as long as the second tarsomere III. Usually smaller species, body length 5–6 mm. ..... 15.

14. Tarsus III reddish-yellow or brownish. Mesosternum and sometimes scutellum black, at most with some diffuse dark-reddish suffusion. .... *A. aggressor* (Fabricius, 1804)

– Tarsus III usually blackish. Mesosternum, and mesopleurum mainly red or brown. Scutellum red, at least in its basal half. .... *A. scutellatum* (Gravenhorst, 1829)

15. Mesopleurum partly or completely reddish or yellowish. ..... 16.

– Mesopleurum mainly or completely black. . 20.

16. Apex of clasper widened, club-shaped (Fig. 97). Pronotum and mesopleurum two-coloured: blackish dorsally and reddish or yellowish ventrally, usually with a sharp border between both colours (Fig. 108). Coxa III reddish-yellow, usually with infuscate dorsal spot at apex. Postpetiole with fine longitudinal striation in its apical half (Fig. 125). .... *A. leucogrammum* (Holmgren, 1860)

– Apex of clasper less clubbed apically, or stab-like. Coxa III yellowish-red, usually without darker dorsal spot. Postpetiole smooth or with fine striation in apical third only (Fig. 124). ..... 17.

17. Lateral margins of face convergent ventrally (Fig. 57). Clasper stab-like. Mesopleurum mainly yellowish or reddish-yellow. ..... 18.

– Lateral margins of face parallel or divergent ventrally (Figs 53, 54, 56). Apex of clasper slightly clavate (Fig. 102). Mesopleurum usually two- or three-coloured: yellow, red, and black. .... 19.

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18. Smaller, body length about 5 mm. Flagellum with 28–32 flagellomeres. Mesopleurum almost smooth. Face strongly convergent ventrally, minimal width about 0.60–0.62 × as length of eye. Usually parasitoids of Microgastrinae (Braconidae) via Lepidoptera. .... *A. splenium* var. *plagiatum* (Thomson, 1886)

– Larger, body length 5.5–9 mm. Flagellum usually with more than 32 flagellomeres. Mesopleurum often with scattered puncture. Face less strongly convergent ventrally, minimal width about 0.68–0.70 × of length of eye. Parasitoids of various Ichneumonidae and Braconidae via Lepidoptera. .... *A. splenium* s. str. (Curtis, 1833)

19. Mesopleurum two-coloured: red and black, usually with a sharp border between the colours. Tibia III apically and tarsus III usually dark brown or blackish. .... *A. tenuicorne* (Thomson, 1886)

– Mesopleurum three-coloured: yellowish ventrally, reddish centrally, with black margin dorsally. Tibia III apically and tarsus III yellowish or pale brown. .... *A. simplex* (Thomson, 1886)

20. Temple as wide as or wider than the eye. Claw III with strong teeth. .... *A. diversum* Schwenke, 1999

– Temple narrower than the eye. Claw III with small basal teeth. ..... 21.

21. Apical tergites with vespoid colour pattern: brown basally and yellowish apically. .... *A. uliginosum* Schwenke, 1999

– Apical tergites blackish, at most with narrow yellowish apical margin. ..... 22.

22. Pronotum reddish with yellowish margins, mesosternum with a diffuse yellowish or reddish stripe. Costula of propodeum usually faint or lacking. Frontal orbit above antenna black. .... *A. alpinum* Roman, 1909

– Pronotum usually blackish, pronotum and mesopleurum at most with dark reddish suffusion. Costula of propodeum usually present. Frontal orbit above antenna usually with yellowish spot (Fig. 53). .... *A. anale* (Holmgren, 1860)

Description of species

Astiphromma (Astiphromma) aggressor (Fabricius, 1804)

Figs 22, 67, 109

Ophion aggressor Fabricius, 1804: 132
Lectotype ♀: *O. aggressor* e Siellandia, Coll. Tønder Lund (KOPENHAVN), designated by Horstmann 2001: 13, not studied.

Mesochorus marginellus Holmgren, 1860: 121, synonymized by Horstmann (2001: 13).
Lectotype ♀: Hlm, Bhn (STOCK), studied.

Astiphromma caecum Schwenke, 1999: 24, ♀ syn. nov.
Holotype ♀: I, VI, Ricoaro, Campogrosso, 1500 m, 1.7.85 (ZSM), studied.

Astiphromma barbatulum Schwenke, 1999: 24, syn. nov.
Holotype ♀: Campi, Riva s. Garda, 1400 m. E/7.7.66 Hbth (ZSM), studied.

Taxonomical remark. This taxon seems to be highly variable in body size and metasomal colour pattern. Therefore, *A. caecum* Schwenke and *A. barbatulum* Schwenke described by single specimens are small but typical examples of *A. aggressor* in my opinion. *A. caecum* is similar to the lectotype of *A. marginellus* with almost completely blackish tergites, *A. barbatulum* shows the commoner feature of metasomal colour of *A. aggressor*, e. g. apical margin of tergite 2, median sandclock-shaped stripe of tergite 3 and often stripe of tergite 4 yellowish-red.

Description of ♀

A variable species. Body length 5.0–9.5 mm. Flagellum with (29)33–42 segments, slender, FEI 0.65–0.7, preapical flagellomeres 1.5–2 × as long as wide, the apical one blunt. Mandibular teeth of equal size. Face punctate and granulate, lateral margins parallel or slightly divergent ventrally, its minimal width 1.0–1.1 × eye length (Fig. 22). Temples strongly narrowed behind eyes, TEI 0.65–0.8. Frons and vertex without punctures. OOD 1.4–1.5. MI 0.6–0.7. Genal carina joining the hypostomal one far from mandibular base.

Lower mesopleurum with fine scattered hair-punctures. Scutellum not carinate. Area superomedia 1.8–2 × as long as wide, its lateral carinae more or less narrowed apically, but often faint. Area petiolaris slightly wider than long, about 0.3 × as long as propodeum. Femur III 3.9–4.8 x as long as wide, inner spur of tibia III 0.45–0.55 × as long as metatarsus III, metatarsus III 0.5–0.6 × as long as tibia III and about 7.5 × as long as wide. Claws III with strong teeth.

Nervulus postfurcal (0.3–0.5 its length). Nervellus of hind wing intercepted in the apical 0.2–0.25.

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Pterostigma slender, 3.3–4.3 × as long as wide, RI 1.2–1.3, radius behind areolet straight or slightly sinusoid (Fig. 109).

First tergite 2.3–2.8 × and postpetiole 1.2–1.4 × as long as wide. Second tergite 0.9 × as long as wide, its thyridium roundish or transverse. Ovipositor sheath 5.8–7.0 × as long as wide, narrowed in the apical 0.4, 0.8–1.2 × as long as the metatarsus III (Fig. 67).

Colour: Black. Ventral margin of face, clypeus in its apical half and usually whole malar space reddish-yellow, rarely almost completely blackish. Flagellum brown dorsally and reddish or yellowish ventrally. Coxa I and trochanter I yellowish, legs otherwise reddish-yellow, coxa III sometimes with reddish-brown spots, femur III often with an dorsal infuscate mark apically, tibia III yellowish, at base narrowly and at apex (0.15–0.25) infuscate. Tarsus III reddish or brownish. Pterostigma pale-brown. Apical margin of tergite 2 and often median stripe of tergite 3, sometimes also of tergite 4 yellowish-red, apical tergites sometimes more or less vespoid. In the lectotype of *A. marginellum* and some other small specimens metasoma blackish, only with narrow apical yellowish margin of tergite 2. Median folds of sternites yellow, lateral parts brownish. Ovipositor sheath black, with pale tip.

Description of ♂

Body length 5.0–9.0 mm. Minimal width of face about 0.85–0.9 × eye length. Flagellum with (26)33–41 segments. Lateral margins of face slightly divergent. Femur III (4.1)4.6–4.9 × as long as wide. Metatarsus III about 10 × as long as wide. Lateral carinae of area superomedia often obsolete in the apical third. Clasper about 1.4–1.6 × as long as the second tarsomere III. Claw III with small basal teeth.

Colour: Black. Clypeus, face and lower 0.2 of temple yellowish. Flagellum yellowish below, infuscate at apex. Mesosternum with dark reddish suffusion, scutellum black. Tergite 2 with a large triangular spot at apical margin, tergite 3 with a sand-clock shaped yellowish-red median stripe. Femur III sometimes with infuscate apex. Tarsus III yellowish or brownish. Otherwise coloured as the ♀.

Hosts. *Craesus latipes* (Villaret, 1832) (Hym., Tenthredinidae) (Constantineanu & Mustata 1981), *Periclista lineolata* (Klug, 1816) (Hym., Tenthredinidae) (Ozols 1961).

Material. 67 ♀♀, 55 ♂♂.

Distribution. Austria (CS, LINZ), Bulgaria (ZSM), Byelorussia* (ZSM), Czechia (LINZ), Finland (CJ), France (LAU), Germany (SCHNEE, ZSM), Great Britain* (EDI, NHM), Italy (ZSM), Norway (CR), Poland (WARS), Sweden (STOCK), Switzerland* (LAU), Turkey* (ZSM).

Astiphromma (Astiphromma) albitarse (Brischke, 1880)

Figs 23, 52, 63, 68

Mesochorus albitarsus Brischke, 1880: 191, ♂, type lost.

Astiphromma nigrum Pfankuch, 1921: 156, ♀, synonymized by Schwenke (1999: 21).
Holotype ♀: Bremen 22.6.16 (BERLIN), not studied.

Astiphromma heydeni Habermehl, 1923: 270, ♀, synonymized by Schwenke (1999: 21), type not studied.

Pseudoacoenitus transsylvanicus Kiss, 1924: 96, ♀, synonymized by Mócsár (1968: 183),
Holotype ♀: Hadad Dr. Kiss (BUDAPEST), not studied.

Description of ♀

Body length 8–11 mm. Flagellum with 40–45 flagellomeres, FEI about 0.6, preapical flagellomeres 1.5–2 × as long as wide, the apical one pointed. Temple strongly narrowed behind eye, TEI 0.6. Face densely punctate and granulate, lateral margins parallel, its minimal width 0.9 × eye length (Fig. 23). Frons and vertex smooth or with scattered fine punctation and/or granulation, temple punctured. OOD 1.3–1.5. MI 0.35–0.4. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum with fine and scattered to dense puncture. Scutellum with distinct lateral carina in more than the basal 0.5, usually completely carinate (Fig. 63). Areae basalis and superomedia confluent, area superomedia broad (about 1.3–1.5 × as long as wide), area petiolaris large, about 0.4 × as long as propodeum, hexagonal, somewhat wider than petiolar base. Femur III 4.1–4.5 × as long as wide. Inner spur of tibia III 0.5 × as long as metatarsus III, metatarsus III about 0.56 × as long as tibia III and 9.5 × as long as wide. Claw III with strong teeth.

Nervulus strongly postfurcal (0.4–0.6 its length). Nervellus of hind wing intercepted in the apical 0.25. Second recurrent vein joining areolet in its middle. Pterostigma 3.6–4.3 × as long as wide, RI 1.3, radius behind areolet sinusoid.

First tergite 2.2–2.4 × and postpetiole 1.2–1.35 × as long as wide, the latter with longitudinal impression medially. Tergite 2 about 1.0–1.1 × as long as wide, its thyridium small, roundish or transverse. Ovipositor sheath about 6.9–7.1 × as long as wide and as long as metatarsus III, narrowed in the apical 0.4 (Fig. 68).

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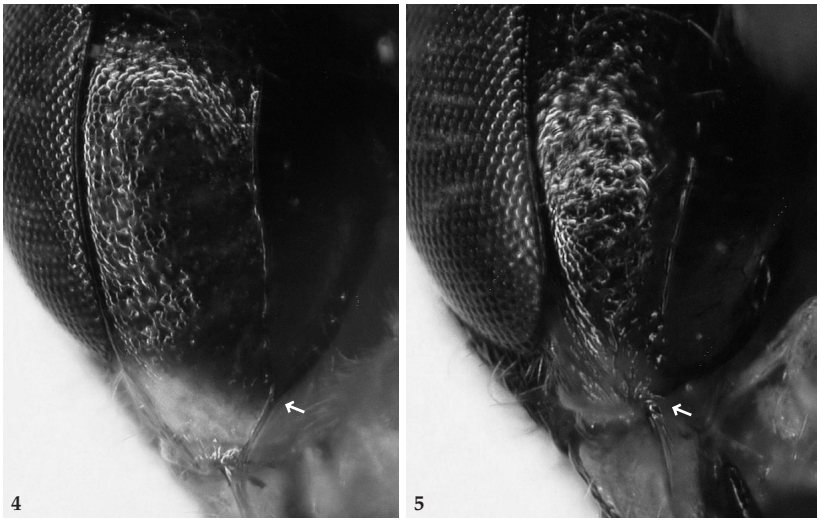

Figs 4–5. Joint of genal and hypostomal carinae (arrow): **4.** *A. alpinum* Roman ♀; **5.** *A. italicum* Schwenke ♀.

Colour: Black. Yellowish are palps and mandible except teeth. Yellowish-red are tegula, and hind edge of pronotum. Legs yellowish-red, coxae I–II more or less brownish, coxa III mainly dark brown. Femur III brown, paler at base. Tibia III infuscate in the apical 0.3–0.4, tarsus III infuscate. Metasoma black, tergite 2 with a narrow yellow hind margin, sternites yellowish medially and brownish laterally, hypopygium brown. Pterostigma brown. Ovipositor sheath black, with pale tip.

Description of ♂

Flagellum with 40–42 flagellomeres. Lateral facial margins convergent ventrally (Fig. 52). OOD 1.2. Frons more or less smooth and shining. Femur III 4.9× as long as wide. Pterostigma 4.1× as long as wide. Nervulus postfurcal (0.3 its length). Claw III with short basal teeth. Clasper about 1.5–1.7× as long as the second tarsomere III, stab-shaped.

Colour: Black. Yellow are face, clypeus, mandible except teeth, palps, malar space, lower 0.2 of temple, tegula, hind edge of pronotum, and subtegular ridge. Cream-yellowish are coxae I–II, trochanters, trochantelli and tarsi. Legs except coxae and trochanters reddish, tibia III yellowish to cream-yellow. Coxa III, femur III and apical 0.25–0.3 of tibia III brownish to blackish, Coxa III ventrally and sometimes femur III basally yellowish. Tergite 2 with reddish-yellow apical margin or triangular apical spot and usually tergite 3 with reddish-yellow sandclock-shaped stripe. Clasper black, tip yellowish.

Hosts. Unknown.

Material. 31 ♀♀, 19 ♂♂.

Distribution. Austria (LINZ), Bulgaria* (CR), Germany (CR, NHM, ZSM), Great Britain* (EDI, NHM), Italy* (CG), Netherlands* (CZ), Sweden* (NHM, STOCK), Switzerland* (LAU).

Astiphromma (Astiphromma) alpinum Roman, 1909

Figs 4, 9, 24, 69, 115

Holotype ♀: LnL [back side] 1904 (STOCK), studied.

Astiphromma dispersum Schwenke, 1999: 20, ♀, syn. nov.
Holotype ♀: Kvikkjokk/S, 11.7.64, R. Hinz (ZSM), studied.

Astiphromma laricis Schwenke, 1999: 24, ♂, syn. nov.
Holotype ♂: 60 L. 49, ex. *L. laricis* 1960, H. Pschorn-Walcher (ZSM), studied.

Description of ♀

Body length 5.5–6 mm. Flagellum with 29–35 flagellomeres, FEI 0.6–0.7, preapical flagellomeres about 1.5× as long as wide, the apical one blunt. Face wide, its minimal width 1.0× eye length, punctate and finely granulated, matt, lateral margins parallel (Fig. 24). Frons with fine granulation, without distinct punctation. Temples strongly narrowed behind eyes, with scattered punctation, TEI 0.7–0.9 (Fig. 9). MI 0.7. OOD 1.3–1.7. Genal carina joining the hypostomal one far from mandibular base (½–⅔ of malar

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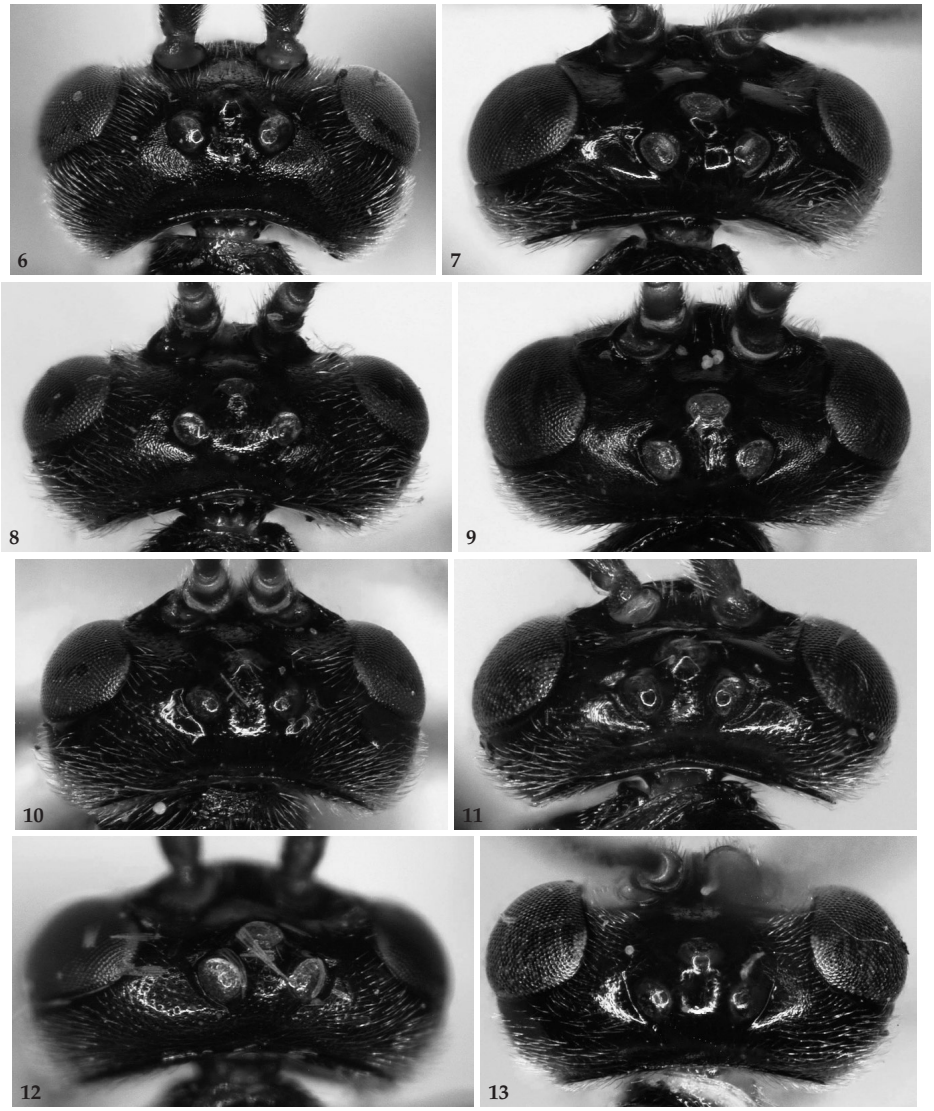

Figs 6–13. Head of ♀♀ from dorsal: **6.** *A. luridum* Schwenke; **7.** *A. italicum* Schwenke; **8.** *A. nigrocoxatum* (Strobl); **9**. *A. alpinum* Roman; **10.** *A. buccatum* (Thomson); **11.** *A. dorsale* (Holmgren); **12.** *A. hirsutum* (Bridgman); **13.** *A. leucogrammum* (Holmgren).

space) (Fig. 4), hypostomal carina slightly elevated.

Lower half of mesopleurum with fine scattered hair-punctures or almost smooth. Scutellum not carinate. Propodeum with carination, but costula usually faint or lacking. Area superomedia narrow, 2.5–3 × as long as wide, behind costulae with almost parallel sides. Area petiolaris about as long as wide, 0.35 × as long as propodeum. Femur III 4.0–4.7 × as long as wide. Inner spur of tibia III about 0.53 × as long as metatarsus III, metatarsus III 0.45 × as long as tibia III and 8.5 × as long as wide. Claw III with 4 teeth.

Nervulus postfurcal (0.1–0.4 × its length). Nervellus of hind wing intercepted in the apical 0.25–0.4, discoidella distinct. Second recurrent vein joining areolet in its middle. Pterostigma 3.2–3.6 × as long as wide, RI 1.15–1.2, radius behind areolet almost straight.

First tergite 2.1 × and postpetiole about 1.25 × as long as wide. Second tergite 0.8–1.0 × as long as wide, its thyridium large and transverse. Ovipositor

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sheath about 6.2–7.7 × as long as wide and 0.8–1.0 × as long as metatarsus III, narrowed in the apical half (Fig. 69).

Colour: Black. Yellowish are mandible except teeth, clypeus, ventral ⅓–¼ of facial orbit, hind edge of pronotum and tegula. Flagellum reddish to brown. Tergite 2 in the apical 0.2 yellowish, base of tergite 3 with a narrow yellowish band or triangular spot. Coxae I–II and all trochanters yellowish. Legs otherwise reddish to reddish-yellow. Tibia III more yellowish and slightly infuscate in apical 0.15–0.2. Tarsus III more or less infuscate. Tergites blackish, hind margin of tergite 2 and sometimes basal margin of tergite 3 with narrow yellowish bands. Epipleura and sides of sternites brownish, sternites yellow medially (Fig. 115). Pterostigma brownish or yellowish-brown. Ovipositor sheath black, reddish in the apical 0.2.

Description of ♂

Body length 5.5–6 mm. Flagellum with 31 flagellomeres, FEI 0.63. Face punctate and granulate, lateral margins of face divergent ventrally. Frons granulate laterally and smooth medially, vertex with very scattered superficial punctation. Temple granulate, only slightly narrowed, TEI 0.9. OOD 1.3. Genal carina meets the hypostomal one far from mandibular base.

Mesopleurum with fine very scattered puncture. Mesoscutum finely granulate, with rugulose-punctate area in front of the prescutellar groove. Scutellum not carinate. Area superomedia narrow, costula faint. Area petiolaris as long as wide. Femur III 4.4 × as long as wide. Claw III with basal teeth.

Nervulus postfurcal (0.4 of its length), nervellus of hind wing intercepted in the apical 0.25. Pterostigma 3.6 × as long as wide, radius behind areolet straight, RI 1.1.

First tergite 2.4 × and postpetiole 1.3–1.4 × as long as wide. Postpetiole smooth. Second tergite 1.0–1.1 × as long as wide, its thyridium roundish. Clasper retracted, about as long as the second tarsomere III.

Colour: Black. Scape and pedicellus yellow ventrally. Face, clypeus, lower 0.2 of temple, propleurum, pronotum reddish, its lower and hind edges mainly yellow. Mesosternum with a diffuse brownish tinge or yellowish stripe. Tergite 2 in the apical 0.2, and tergite 3 with a sand-clock shaped yellowish stripe. Sternites 1–3 yellow medially, with brown lateral spots, sternites 4–7 brownish, with narrow yellow apical margins. Pterostigma brownish-yellow. Legs yellowish. Femur III weakly infuscate at apex. Tibia III in the apical 0.15 slightly infuscate, metatarsus III in the apical 0.3, and tarsomeres III completely infuscate.

Hosts. *Pristiphora laricis* (Hartig, 1837) (Hym., Tenthredinidae) (NHM, ZSM), *Pachynematus imperfectus* (Zaddach, 1876) (Hym., Tenthredinidae) (NHM).

Material. 18 ♀♀, 6 ♂♂.

Distribution. Germany (CR, ZSM), Great Britain* (NHM), Italy (ZSM), Poland (ZSM), Sweden (STOCK, ZSM), Switzerland* (NHM).

Astiphromma (Astiphromma) anale (Holmgren, 1860)

Figs 26, 27, 53, 70

Mesochorus analis Holmgren, 1860: 120, ♀♂, types not studied.

Description of ♀

Body length 6 mm. Flagellum with 26–31 flagellomeres, FEI 0.65–0.7, preapical segments 1.2–2 × as long as wide. Mandibular teeth of equal size. Face punctate and granulate, matt, lateral margins parallel ventrally, its minimal width about 0.9–1.0 × as the length of eye (Fig. 26). TEI 0.55–0.65. Lower frons granulate laterally, smooth and shining medially. OOD 1.4–1.6. MI 0.6–0.7. Genal carina reaches the hypostomal one far from mandibular base, hypostomal carina slightly elevated.

Lower half of mesopleurum with very fine and scattered hair-puncture. Scutellum not carinate. Propodeum with almost complete carination, areae basalis and superomedia confluent, area superomedia about 2 × as long as wide. Area petiolaris large, wider than the petiolar base, 0.35 × as long as propodeum. Femur III 3.8–4.3 × as long as wide, inner spur of tibia III 0.6 × as long as metatarsus III, metatarsus III 0.45 × as long as tibia III and 9–9.5 × as long as wide. Claws III with about 3 teeth in the basal ⅔.

Nervulus postfurcal of 0.3–0.5 its length. Pterostigma 3.8 × as long as wide, RI 1.2–1.25, radius behind areolet straight.

First tergite 2.4 × and postpetiole about 1.6 × as long as wide apically, usually with a median longitudinal impression. Thyridium of tergite 2 roundish. Ovipositor sheath about 6–7.1 × as long as wide and 0.9 × as long as metatarsus III, narrowed in the apical fourth, tip sometimes slightly bent towards dorsal (Fig. 70).

Colour: Black. Cream-yellow are palps and mandible except teeth, clypeus, face (Figs 26, 27), usually a small spot on frontal orbit above antenna (Fig. 53), gena, tegula, hind edge of pronotum and subtegular ridge, coxae I–II and all trochanters. Scutellum rarely with reddish suffusion. Scape and

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pedicellus yellowish, flagellum pale brownish or yellowish. Legs yellowish-red, tibia III yellowish, at apex indistinctly infuscate. Pterostigma yellow, with darker margins. Tergite 2 with reddish band in apical 0.2, tergite 2 with sandclock-shaped reddish median stripe, tergite 4 reddish with brownish sides, following tergites reddish or yellowish-red, rarely tergite 4–7 dark brownish. Sternites reddish or yellowish, sometimes with brown spots laterally. Ovipositor sheath yellowish-red or brownish.

Description of ♂

Flagellum with 27–34 flagellomeres. TEI 0.5–0.65. OOD 1.3–1.5. MI about 0.5. Nervulus slightly to distinctly postfurcal. Femur III 3.9–4.5 × as long as wide. Clasper 1.0–1.2 × as long as the second tarsomere III.

Colour: Black. Clasper yellowish. Vertex rarely with yellowish spot. Sometimes pronotum and/or mesosternum with dark reddish-brown suffusion. Femur III sometimes with narrowly infuscate apex. Tibia III yellowish-red, sometimes apical 0.25 infuscate. Otherwise as in female.

Hosts. Unknown.

Material. 48 ♀♀, 65 ♂♂.

Distribution. Austria (CS, NHM, ZSM), Byelorussia* (ZSM), Estonia* (CJ), Finland (CJ, NHM, ZSM), France* (LINZ, NHM. ZSM), Germany (CR, ZSM), Great Britain* (NHM), Netherlands* (CZ), Norway (CR), Poland (WARS), Russia* (LINZ, STOCK), Switzerland (NHM, ZSM), Sweden (STOCK, ZSM).

Astiphromma (Astiphromma) buccatum (Thomson, 1886)

Figs 10, 25, 54, 64, 71, 110

Mesochorus (*Astiphrommus*) *buccatus* Thomson, 1886: 329, ♀♂.
Lectotype ♀: Tve 6/78 (LUND), designated by Fitton, 1982: 52, studied.

Mesochorus (*Astiphrommus*) *hamulus* Thomson, 1886: 330, syn. nov.
Holotypus (herewith designated) ♂: Strandm Drewsen, Danmark ex coll. Schiødte (KOPENHAVN), not studied.

Astiphromma consertum Schwenke, 1999: 23, ♀, syn. nov.
Holotype ♀: Leyman/Alsace/F, 6.60/4.61, F. Daniel (ZSM), studied.

Taxonomical remark. Thomson (1886: 329) in his original publication did not mention how many specimens he had for his description but arranged *A. hamulum* within the group of yellow-faced females. Discussing the type material of *A. hamulum*, Fitton (1982: 53) stated that there is no direct evidence that the specimen in Copenhagen is a syntype and that no typical material was found in the Thomson collection in Lund. The specimen of Thomson from Lund, which I studied, was labelled as a lectotype by Schwenke, but is in fact a male of *Astiphromma anale* (Holmgren). So far, only males of *A. hamulum* have been found in all the examined European collections, and the available literature mentioned males only (Smits van Burgst 1918, Morley 1915, Jussila 2010).

I therefore suggest that Thomson made a lapsus to include the species into the group of yellow-faced *Astiphromma* females. Since *A. hamulum* shows many structural details (larger lower mandibular tooth, genal carina reaching mandibular base, strongly developed temple) in common with the females of *A. buccatum* (Thomson), I herewith synonymize both taxa.

Description of ♀

Body length 6–7 mm. Flagellum with 32–35 flagellomeres, FEI 0.64–0.72, preapical segments 1.5 × as long as wide. Apical flagellomere blunt. Lower mandibular tooth slightly larger than the upper one. Clypeus apically blunt and slightly protruding. Face with coarse and dense puncture, lateral margins usually divergent ventrally, its minimal width 1.1 × eye length (Fig. 25). Temples parallel behind eyes, slightly narrowed apically, punctate, TEI 0.9–1.3 (Fig. 10). Frons and vertex granulate and with fine punctures, temple with distinct punctation. Frons sometimes with transverse striae laterally. OOD 1.4–1.5. MI 0.65. Genal carina joining the hypostomal one at or close to mandibular base, hypostomal carina slightly elevated.

Lower half of mesopleurum with dense punctation. Scutellum not carinate. Propodeum with almost complete carination. Area superomedia confluent with area basalis, 2.5–3 × as long as wide, slightly widened apically or with parallel sides. Area petiolaris large, wider than the petiolar base, about 0.3 × as long as propodeum. Femur III 4.1–4.7 × as long as wide, inner spur of tibia III 0.5 × as long as metatarsus III, metatarsus 0.48 × as long as tibia III and 9.5 × as long as wide. Claw III with strong teeth.

Nervulus interstitial or slightly postfurcal (0.2 its length). second recurrent vein joining areolet in its middle, pterostigma 3.3–3.6 × as long as wide, RI 0.9–1.1, radius behind areolet straight. Nervellus of hind wing intercepted in the apical 0.2, discoidella more or less distinct.

First tergite short, 2.1–2.3 × and postpetiole 1.0–1.2 × as long as wide. Postpetiole with superficial punctation. Second tergite about as long as wide, its thyridium small, transverse or oblique. Ovipositor

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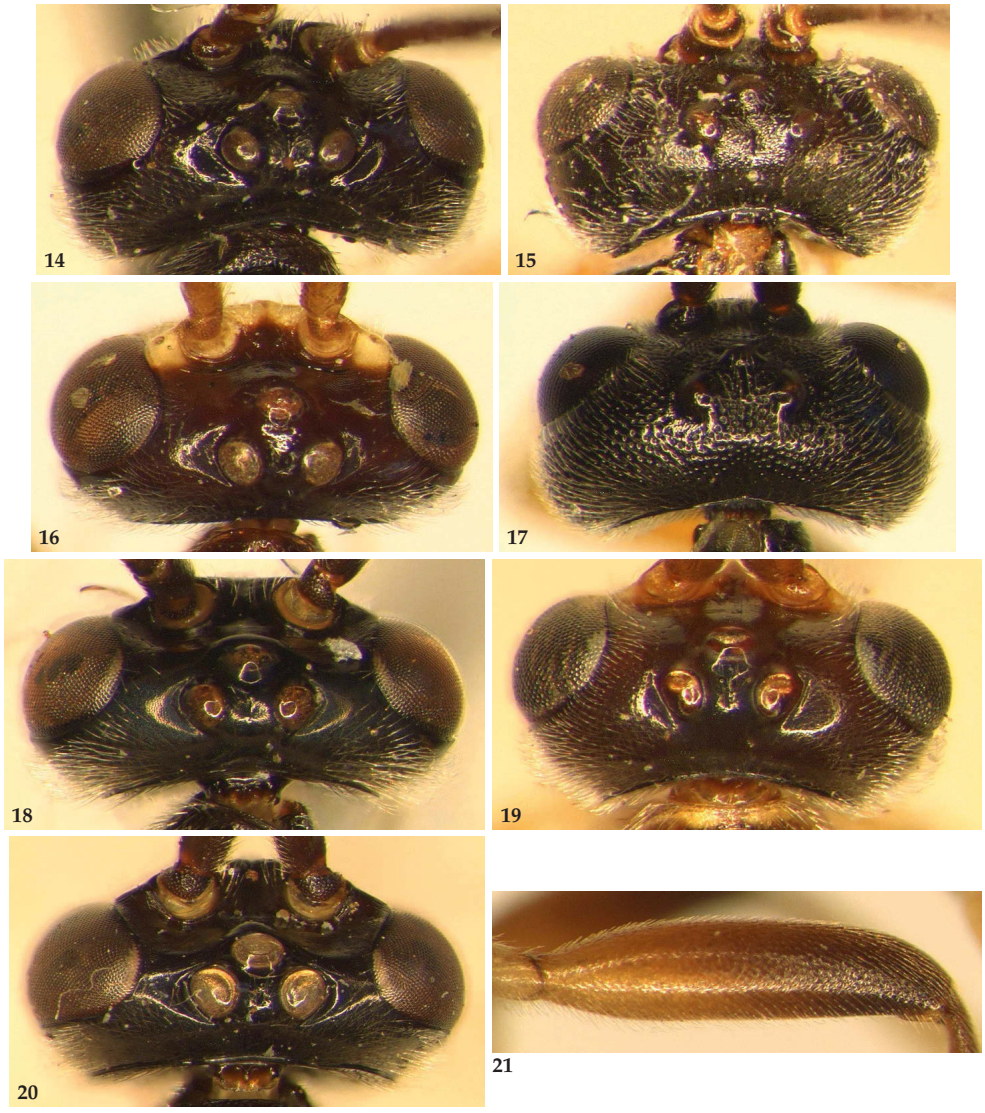

Figs 14–20. Head of ♀♀ from dorsal: **14.** *A. flagellator* spec. nov.; **15.** *A. flavoventrale* spec. nov.; **16.** *A. striatum* (Brischke); **17.** *A. nigriceps* (Brischke); **18.** *A. scutellatum* (Gravenhorst); **19.** *A. tenuicorne* (Thomson); **20.** *A. varipes* (Holmgren). **Fig. 21.** Hind femur of *A. splenium* (Curtis) ♀.

sheath short, 5.2–6.2 × as long as wide and 0.8–1.3 × as long as metatarsus III (Fig. 71).

Colour: Black. Scape and pedicellus often, hind edge of pronotum and tegula always yellow, flagellum reddish basally, apically infuscate. Clypeus completely black or narrowly reddish, ventral margin of face beside clypeus narrowly reddish or yellowish. Tergite 2 with a narrow reddish apical margin, tergite 3 black or brownish, following tergites black with narrow yellowish apical margins. Sometimes all tergites except postpetiole with narrow pale apical margins. Sternites yellowish with brown lateral spots. Legs reddish-yellow, trochanter III and tibia III more or less yellowish, tibia III usually infuscate in the apical 0.1–0.2, tarsus III brownish or infuscate. Pterostigma brown. Ovipositor sheath black, with reddish tip.

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Figs 22–27. Face of ♀♀ from frontal: **22.** *A. aggressor* (Fabricius); **23.** *A. albitarse* (Brischke); **24.** *A. alpinum* Roman; **25.** *A. buccatum* (Thomson); **26–27.** *A. anale* (Holmgren).

Description of ♂

Body length 6–9 mm. Flagellum with (31)33–40 flagellomeres, FEI 0.6–0.65, preapical segments about 1.5× as long as wide. Apical flagellomere blunt. Lower mandibular tooth slightly larger than or equal to the upper one. Face with coarse and dense punctation, shining, lateral margins divergent ventrally (Fig. 54). Temples parallel behind eyes, moderately narrowed behind, TEI (0.7) 1.0–1.1. Frons, vertex, and temple with scattered to dense, distinct punctures, shining. OOD 1.2–1.6. MI 0.55–0.65. Genal carina joining the hypostomal one close to mandibular base, hypostomal carina slightly to moderately elevated.

Lower half of mesopleurum with fine and

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moderately dense (or dense) puncture. Scutellum not carinate. Propodeum with complete carination, area superomedia usually strongly narrowed apically, 2.5–3.5 × as long as wide. Area petiolaris much wider than long, kidney-shaped. Femur III 4.3–4.8 × as long as wide. Inner spur of tibia III 0.5 × as long as metatarsus III, metatarsus III 0.45–0.5 × as long as tibia III. Claw III with about 5 strong teeth.

Nervulus interstitial to slightly postfurcal (0.2 its length). second recurrent vein joining areolet in or basal to its middle. Pterostigma 3.3–3.6 × as long as wide, RI 1.0, radius behind areolet straight.

First tergite 2.6–2.9 × and postpetiole 1.4–1.5 × as long as wide. Postpetiole smooth, often with a more or less distinct longitudinal median impression. Second tergite 1.2–1.5 × as long as wide, its thyridium transverse or oblique, small. Clasper stab-like, about 1.0–1.2 × as long as the second tarsomere III.

Colour: Black. Scape below, pedicellus and basal flagellomeres on outer side yellowish. Clypeus, face, lower frontal orbit, malar space, lower third of gena, mandible except teeth, palps, coxae I–II and trochanters I–II, all trochantelli cream-yellow. Propleurum, pronotum mainly, mesosternum and lower half of mesopleurum yellowish, sometimes mesosternum partly reddish. Mesoscutum with four yellowish longitudinal stripes laterally and submedially (the submedial ones sometimes short), confluent at anterior margin (Fig. 64). Tergites 2–6 with narrow reddish-yellow apical margins, tergite 3 with a sand-clock shaped reddish-yellow median stripe. Epipleura and sternites yellow, sometimes sternites brownish laterally. Legs reddish-yellow, tibia III infuscate in the apical 0.1, metatarsus III in the apical 0.3, and following tarsomeres III more or less infuscate. Pterostigma yellowish-brown to brown.

Hosts. *Periclista* sp. (Hym., Tenthredinidae) (ZSM), *Pachynematus* sp. (Hym., Tenthredinidae) (Schwenke, 1999), *Diprion* sp. (Hym., Diprionidae) (Schwenke, 1999).

Material. 8 ♀♀, 6 ♂♂.

Distribution. Bulgaria* (ZSM), Germany (ZSM), Great Britain (NHM), Morocco* (LINZ), Netherlands (CZ), Spain (LINZ, WARS).

Astiphromma (Astiphromma) diversum Schwenke, 1999

Figs 28, 59, 72

Astiphromma diversum Schwenke, 1999: 24, ♀♂.

Holotypus ♀: Dessau/D, 4,4 km SW, 17.5.93, H. Zoerner (SDEI), not studied.

Taxonomical remark. Schwenke had determined some females and males as *A. buccatum* Thomson (material in ZSM), but *A. diversum* can easily be differentiated by the form of genal carina and the equally sized mandibular teeth.

Description of ♀

Body length 5.5–6.5 mm. Flagellum with 34–37 flagellomeres, short, FEI 0.67–0.72, preapical flagellomeres 1.5–2 × as long as wide, apical flagellomere pointed. Mandibular teeth of almost equal size, mandible with a strong ventral lamella. Face strongly punctate, with fine granulation, but more or less shining, its width 1.1 × eye length, lateral margins divergent ventrally (Fig. 28). Frons granulate, and more or less punctate laterally. Temple more or less narrowed behind eye, punctate, TEI 0.8–0.9. OOD about 1.5. MI 0.6–0.7. Genal carina joining the hypostomal one distant from mandibular base (about 1/3–1/2 of malar length), hypostomal carina slightly elevated.

Lower half of mesopleurum with fine but dense punctures. Scutellum not carinate. Propodeum with complete carination, area superomedia slender, 2.5–2.7 × as long as wide, with almost parallel sides. Area petiolaris large, hexagonal, 0.35 × as long as propodeum. Femur III 4.0–4.8 × as long as wide. Inner spur of tibia III 0.5–0.52 × as long as metatarsus III, metatarsus III about 0.45 times as long as tibia III. Claw III with 4 strong teeth (Fig. 59).

Nervulus postfurcal (0.2–0.5 its length), nervellus in hind wing intercepted almost in the middle or apical third, discoidella distinct. Pterostigma about 3.9 × as long as wide, RI 1.15, radius behind areolet straight. Second recurrent vein reaching areolet in or beyond its middle.

First tergite 2.2 × and postpetiole 1.2–1.3 × as long as wide. Second tergite 0.85–0.9 × as long as wide, its thyridium large, roundish. Ovipositor sheath about 6.5 × as long as wide and 0.85–0.9 × as long as metatarsus III, slightly lanceolate, narrowed in the apical half (Fig. 72).

Colour: Black. Ventral margins of face narrowly reddish, malar space partly yellowish, clypeus almost completely black. Tegula and hind edge of pronotum cream–yellow. Legs reddish. tibia III more yellowish-red, slightly infuscate in the apical 0.1, tarsus III more or less infuscate. Tergites black, only with very narrow paler hind margins, sternites medially yellow, laterally black. Pterostigma brown. Ovipositor sheath black, with pale tip.

Description of ♂

Body length 5–6.5 mm. Flagellum with 31–35 flagellomeres. Facial sides divergent ventrally or parallel. Temples slightly narrowed behind eyes, TEI 0.9–1.1.

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Vertex with scattered puncture. OOD 1.1–1.5. Lower mesopleurum with small but dense or scattered punctation. Area petiolaris wider than petiolar base. Nervulus slightly postfurcal (0.1–0.2), nervellus in hind wing intercepted in its apical 0.2–0.6. Pterostigma 3.5 × as long as wide, RI 1.25. Femur III 4.2 times as long as wide. Inner spur of tibia III 0.5 × as long as metatarsus III, metatarsus III 0.47 × long as tibia III. Claw III with 4 teeth. Clasper about 1.1–1.3 times as long as the second tarsomere III.

Colour: Black. Face, clypeus, mandibles except teeth, palps, malar space, gena in the lower 0.2, hind pronotal edge yellowish. Legs yellow-red, coxae and trochanters I–II (III) more yellowish. Tibia III slightly darkened at apex. Tarsus III more or less infuscate. Bases of tergites 3 and 4 with a median yellowish spot or tergite 3 with a median reddish stripe. Pterostigma brownish.

Host. *Pristiphora* sp. (Hym., Tenthredinidae) via *Trematopygus* sp. (Hym., Ichneumonidae) (Schwenke 1999).

Material. 2 ♀♀, 14 ♂♂.

Distribution. Austria (LINZ, NHM, ZSM), Bulgaria* (ZSM), Czechia (LINZ), Germany (CR, SCHNEE), Netherlands* (CZ), Sweden* (STOCK), Switzerland (CA).

Astiphromma (Astiphromma) dorsale (Holmgren, 1860)

Figs 1, 11, 29, 61, 73, 105, 126, 127

Mesochorus dorsalis Holmgren, 1860: 117, ♀♂, types not studied.

Mesochorus scutellatum Brischke, 1880: 180, praeocc. by *M. scutellatum* Gravenhorst, 1829, ♀, synonymized by Schmiedeknecht (1910: 1946).

Taxonomical remark. Lee (1992) published a revision of the world species of *Astiphromma* having an apical tubercle or granule on scutellum (group B of Nakanishi (1969)). He differentiated the taxa *A. dorsale* and *A. granigerum* (recte *A. hirsutum*) by the structure of the second tergite and clypeal foveae, and the density of mesopleural punctures. However, a detailed analysis of the European material of both taxa revealed a large variability of all these characters. In my opinion, the morphological features used by Lee (1992) are not reliable for a clear differentation of the European material. It seems that he used a mix of both taxa for his description of *A. dorsale*.

Here, the form and length of ovipositor sheath, of the hind femur and hind metatarsus have been used to differentiate both taxa (see Figs 126–127). However, some intermediate specimens could not be determined doubtlessly.

Description of ♀

Body length very variable (6–11 mm). Flagellum with 35–41 flagellomeres, FEI 0.6–0.65, preapical segments about 2 × as long as wide. Mandibular teeth equally sized. Facial width 1.0 × eye length. Lateral facial margins more or less parallel, face punctate and granulate, matt, with some oblique striation beside clypeus (Fig. 29). Frons with fine granulation. Temple punctate, TEI 0.9–1.0 (Fig. 11). Genal carina joining the hypostomal one far from mandibular base.

Lower part of mesopleurum with usually fine scattered (rarely dense) punctation or almost smooth (Fig. 105). Scutellum not carinate, pointed apically. Propodeum short, apical transverse carina of area superomedia usually faint or lacking, carination otherwise complete. Area superomedia 1.3–1.6 × as long as wide. Area petiolaris very large, wider than long, about 0.45–0.5 × as long as propodeum. Femur III stout, 3.8–5.1 × as long as wide. Metatarsus III stout, about 6–7.5 × as long as wide and 0.40–0.45 × as long as tibia III. Inner spur of tibia III 0.6–0.7 × as long as hind metatarsus. Hind claw strongly curved apically (90°) and with strong and long teeth (Fig. 61).

Nervulus slightly postfurcal (0.3 × its length). Second recurrent vein joining areolet basal of its middle. Pterostigma 3.6–3.8 × as long as wide, RI 1.2–1.3.

First tergite 2.3 × and postpetiole 1.0–1.1 × as long as wide. Second tergite 0.8–1.1 × as long as wide, its thyridium large and roundish. Ovipositor sheath about 5.2–7.5 × as long as wide and 0.95–1.3 × as long as the hind metatarsus (Fig. 73).

Colour: Black. Flagellum usually infuscate. Yellowish are clypeus and malar space, face beside clypeus, tegula, hind edge of pronotum and subtegular ridge, coxae and trochanters I–II. Scutellum, and sometimes mesoscutum, mesopleurum and metapleurum more or less reddish. Legs reddish-yellow, tibia III infuscate basally and apically, tarsus III usually blackish. Pterostigma brown. Ovipositor sheath black, with pale tip.

Variety: 1 specimen from Byelorussia (ZSM) with second tergite 1.3 × as long as wide.

Description of ♂

Body length 6–9 mm. Flagellum with 34–37 flagellomeres, FEI 0.6. Minimal width of face 0.8–0.9 × eye length. TEI 0.75–0.9. OOD1.0. Frons beneath ocelli with fine puncture. Lower mesopleurum with scattered punctation or almost smooth. Femur III 4.7–5.0 × as long as wide. Metatarsus III 0.45 × as long as tibia III. First tergite 2.35 × and postpetiole 1.2 × as long as wide. Second tergite 0.95 × as long as wide. Clasper about 1.2–1.3 × as long as the second tarsomere III.

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Figs 28–33. Face of ♀♀ from frontal: **28.** *A. diversum* Schwenke; **29.** *A. dorsale* (Holmgren); **30.** *A. flagellator* spec. nov.; **31.** *A. flavoventrale* spec. nov.; **32**. *A. hirsutum* (Bridgman); **33**. *A. italicum* Schwenke.

Colour: Black. Flagellum yellowish basally and infuscate apically. Cream-yellow are mandible except teeth, palps, clypeus, face, gena, lower third of temple, hind edge of pronotum, subtegular ridge, tegula, coxae I–II and all trochanters and trochantelli. Propleurum, pronotum, mesopleurum, sometimes mesoscutum, and scutellum more or less reddish. Legs yellowish-red, tibia III in the apical 0.1–0.2, and often tarsus III more or less infuscate. Metasoma blackish, tergite 2 with a narrow yellowish apical margin. Tergite 3 often diffusely reddish medially. Sternites brownish, the frontal ones with yellow median membranous areas. Pterostigma yellowish-brown to brownish.

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Figs 34–39. Face of ♀♀ from frontal: **34.** *A. leucogrammum* (Holmgren); **35.** *A. longiceps* (Strobl); **36.** *A. luridum* Schwenke; **37.** *A. striatum* (Brischke); **38.** *A. nigrocoxatum* (Strobl); **39**. *A. pictum* (Brischke).

Hosts. *Panolis flammea* (Denis & Schiffermüller, 1775) (Lep., Noctuidae) via Tachinidae (Diptera) (Schwenke, 1999). Schwenke (1999) mentioned also *Meteorus* sp. (Hym., Braconidae) as primary parasitoide, this report is very questionable.

Material. 64♀♀, 27♂♂.

Distribution. Austria (CS, CZ), Bulgaria (ZSM), Byelorussia* (ZSM), Czechia (LINZ), France (CZ), Germany (CR, CZ), Italy (CZ, ZSM), Netherlands (CZ), Norway (CR), Russia (Moscow reg.) (LINZ), Russia (Siberia) (CR), Switzerland* (LAU), Sweden (STOCK).

A. dorsale (Holmgren) has not been found in Britain so far, all specimens seen from Britain (EDI, NHM) belong to *A. hirsutum* (Bridgman).

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Astiphromma (Astiphromma) flagellator **spec. nov.**

Figs 14, 30, 65, 75

Holotype ♀: Erlangen 10.3.1953, *Mesochorus* sp. n. R. Bauer ♀, Holotypus, *Astiphromma flagellator* n. sp. det. Riedel 2013 (ZSM).

Paratype ♀: NETHERLANDS: Wijster (Dr.) 28.v–11.vi.76 C. v. Achterberg (NHM).

Taxonomical remark. This new taxon resembles *A. buccatum* (Thomson). It differs by the form of genal carina, shorter flagellomeres, short first tergite, and darkened coxa III.

Description of ♀

Body length 5.5–6.0 mm. Flagellum with 28 flagellomeres, short, FEI 0.51, preapical flagellomeres only slightly longer than wide (Fig.65). Mandibular teeth equally sized or lower tooth slightly larger than the upper one. Face, temple and frons with coarse punctation (Fig. 30). Temple slightly narrowed behind eye, TEI 0.9. Lateral margins of face divergent ventrally, its minimal width 0.9 × eye length. OOD 1.5. MI 0.6. Genal carina joining the hypostomal one more or less away from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum with superficial but dense punctation. Scutellum not carinate. Propodeum with complete carination, area superomedia short, 1.5–1.7 × as long as wide, area petiolaris very large, hexagonal, about 0.4 × as long as the propodeum. Femur III stout, 3.6–3.7 × as long as wide. Metatarsus III about 0.45 × as long as tibia III and 9.5 × as long as wide. Claw III with 5 strong teeth.

Nervulus almost interstitial, nervellus in hind wing intercepted in the apical 0.25, discoidella weakly sclerotized. Pterostigma about 3.3 × as long as wide, radius behind areolet slightly bent to anterior wing margin, RI about 0.95.

Petiolus short, first tergite 2.1 × and postpetiole 1.1–1.2 × as long as wide, postpetiole in paratype with median longitudinal impression. Second tergite about 0.8 × as long as wide, thyridium very small, slightly transverse. Ovipositor sheath 5.5–6.4 × as long as wide and 0.9 × as long as metatarsus III, narrowed in the apical half (Fig. 75).

Colour: Black. Flagellum infuscate. Clypeus black, ventral margin of face and malar space yellowish. Tegula, hind edge of pronotum and subtegular ridge yellow. Coxa II basally and coxa III dorsally brown, paler ventrally. Legs otherwise reddish-yellow, tibia III yellowish, infuscate in apical 0.15, tarsus III brownish. Tergite 2 (or 2–3) with narrow yellowish apical margin. Sternites yellow medially and more or less brown laterally. Pterostigma brown. Ovipositor sheath blackish, with pale tip.

♂ unknown.

Hosts. Unknown.

Material. 2 ♀♀.

Distribution. Germany (ZSM), Netherlands (NHM).

Astiphromma (Astiphromma) flavoventrale **spec. nov.**

Figs 15, 31, 76, 107, 119

Holotype ♀: Itl. [back] 1908, 22/7, *Astiphr.* ? *incidens* Thm ♀ var. (STOCK)

Paratype ♀: 15/7, Torne Tr. Malaise (STOCK), head missing

Taxonomical remark. This new taxon can easily be identified by its characteristic colour of face and mesosoma. Unfortunately, the head of paratype is missing.

Description of ♀

Body length 5mm. Flagellum stout, filiform, with 28 flagellomeres, FEI 0.8, preapical flagellomeres about 1.5 × as long as wide. Mandibular teeth equally sized. Head granulate, matt. Face with superficial punctation, lateral margins parallel ventrally (Fig. 31). Temples slightly narrowed behind eyes, TEI 1.1 (Fig. 15). OOD about 1.3. MI 0.7. Genal carina joining the hypostomal one far from mandibular base. Hypostomal carina not elevated.

Lower part of mesopleurum with very dense fine rugulose punctures, matt (Fig. 107). Upper part punctate, speculum smooth. Scutellum not carinate. Propodeum with complete carination, area superomedia slender, 2.3–2.5 × as long as wide, with costula in the basal third. Area petiolaris short, about as long as wide. Coxa III rugulose, matt. Femur III 5.3 × as long as wide. Metatarsus III about 0.5 × as long as tibia III. Inner spur of tibia III 0.43 × as long as metatarsus III. Claw III with distinct teeth.

Nervulus interstitial. Nervellus of hind wing intercepted in the lower 0.2, but discoidella not developed. Pterostigma about 3.3 × as long as wide, RI 1.0.

First tergite 2.1 × and postpetiole 1.25 × as long as wide. Postpetiole with fine rugulo-striation. Second tergite about 0.95 × as long as wide, without distinct thyridium. Ovipositor sheath short, 5.5 × as long as wide, and 0.8 × as long as metatarsus III, slightly bent upwards (Fig. 76).

Colour: Black. Yellowish are clypeus, malar space, mandible except teeth, lower 0.3 of temple, face except a median rectangular black spot below the

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antenna (Fig. 31), often subtegular ridge, lateral spot and hind edge or upper margin of pronotum, tegula, complete mesosternum, coxae and trochanters I–II, ventral apical spot on coxa III, apical transverse stripes of tergites ⅔–7. Legs yellowish-red, coxa III and trochanter III with a diffuse blackish stripe dorsally, tibia III indistinctly infuscate at apex, tarsus III brownish. Pterostigma yellowish, margins brownish. Ovipositor sheath reddish-brown.

♂ unknown.

Hosts. Unknown.

Material. 2♀♀.

Distribution. Sweden (STOCK).

Astiphromma (Astiphromma) hirsutum (Bridgman, 1883)

Figs 12, 32, 58, 74, 106, 126, 127

Mesochorus hirsutus Bridgman, 1883: 168.
Paralectotypes 1♀, 2♂: *Mesochorus hirsutus* Bridgman 1883 det. M. G. Fitton 1975 (glued on card) (NHM), studied.

Mesochorus (*Astiphrommus*) *graniger* Thomson, 1886: 328, syn. nov.
Lectotype ♀: Ört. (LUND), locus typicus: Sweden, Pålsö, designated by Fitton, 1982: 53, studied.

Taxonomical remark. The species is closely related to *A. dorsale* (Holmgren). In females the ovipositor sheath and femur III are slenderer (Figs 126–127), the flagellum usually paler, and the punctation of lower mesopleurum denser. In most cases, the specimens are distinguishable by using a combination of these morphological characters, but there are some intermediate specimens regarding to all of these characters.

For the males I have not found clearly distinctive features. In my opinion, it is not impossible that both species belong to a widely variable taxon where the variation might depend on the primary Tachinid parasitoid or other developmental factors. On the other hand, the *dorsale* group might contain several closely related taxa not distinguishable by morphological characters yet.

Description of ♀

Body length 4.5–10.0 mm. Flagellum with 34–41 flagellomeres, FEI 0.7, preapical flagellomeres about 2 × as long as wide, apical one pointed. Mandibular teeth of equal size. Temple moderately to strongly narrowed behind eye, TEI 0.8–0.9 (Fig. 12). Face densely punctured and granulated, with lateral margins convergent ventrally, its minimal width 0.9–0.95 × eye length (Fig. 32). Frons with fine granulation, but shining, vertex and temple punctate. OOD 1.0. Malar space finely striate, MI 0.7. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum with scattered but coarse puncture (Fig. 106). Scutellum not carinate, more or less pointed apically (in 1 specimen from Britain scutellum virtually rounded). Propodeum with distinct carinae, area superomedia narrowed apically, about 1.8 × as long as wide, apical transverse carina usually distinct, costula in the frontal half of area superomedia. Area petiolaris large, as long as wide, wider than the base of tergite 1, 0.4 × as long as propodeum. Femur III 4.6–5.6 × as long as wide. Inner spur of tibia III 0.46 × as long as metatarsus III. Metatarsus III about 0.45–0.5 × as long as tibia III. Claw III with strong teeth, the third tooth much longer than the others.

Nervulus slightly postfurcal (0.2 its length). Nervellus in hind wing intercepted in apical 0.25, discoidella distinct. Pterostigma slender, about 3.8–3.9 × as long as wide.

First tergite 2.4–2.8 × and postpetiole 1.1–1.35 × as long as wide, smooth. Second tergite 1.0–1.1 × as long as wide, its thyridium large, transverse. Ovipositor sheath 7.3–9.8 × as long as wide and 1.1–1.3 × as long as metatarsus III, slightly narrowed in the apical half (Figs 74, 126, 127).

Colour: Black. Flagellum reddish or more or less infuscate. Cream-yellow are mandibles except teeth, palps, clypeus and wide ventral margin of face, malar space, hind edges of pronotum, tegula, coxae I–II and all trochanters. Mesopleurum and apex of scutellum diffusely reddish. Legs yellowish-red, tibia III infuscate in the apical 0.1–0.15. Tergite 2 with a narrow yellow apical margin. Sternites yellowish, with brownish sides, Pterostigma pale brownish. Ovipositor sheath black, with pale tip.

Variety: 1 specimen from Britain (EDI): mesosoma completely black.

Description of ♂

Body length 5.5–8.0 mm. Flagellum with 34–39 segments, FEI 0.6–0.65, preapical flagellomere about 2 × as long as wide, the apical one pointed. Mandibular teeth equally sized. Face wide, its minimal width about 0.80–0.95 × the eye length, with more or less parallel lateral margins. Face punctate, frons with fine granulation. Temple punctate, TEI 0.75. OOD about 1.0. MI 0.5. Genal carina joining the hypostomal one far from mandibular base. Mesopleurum with scattered to dense punctation. Scutellum not carinate. Propodeum usually with complete carination. Area petiolaris hexagonal, somewhat wider than

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Figs 40–45. Face of ♀♀ from frontal: **40.** *A. rimosum* Schwenke; **41.** *A. scutellatum* (Gravenhorst); **42.** *A. simplex* (Thomson); **43.** *A. splenium* (Curtis); **44.** *A. tenuicorne* (Thomson); **45.** *A. uliginosum* Schwenke.

long, Apical transverse carina of area superomedia often present. Nervulus almost interstitial. Areolet quadrangular, receiving second recurrent vein in its middle. Pterostigma wide, about 3.2 × as long as wide, RI 1.1.5. Femur III 4.8–5.3 × as long as wide. Claw III with 3–4 strong teeth. First tergite 2.3 ×, and postpetiole 1.25 × as long as wide, smooth. Second tergite 0.9–0.95 × as long as wide, with roundish thyridium. Clasper about 1.2–1.3 times as long as second tarsomere III, with knob-like thickened apex.

Colour: Black. Flagellum usually pale brownish. Cream-yellow are mandible except teeth, clypeus, face, gena, lower third of temple, hind edge of pronotum, subtegular ridge, tegula, coxae I–II and trochanters I–II. Propleurum, pronotum, mesopleurum, mesoscutum sometimes, and scutellum more or less

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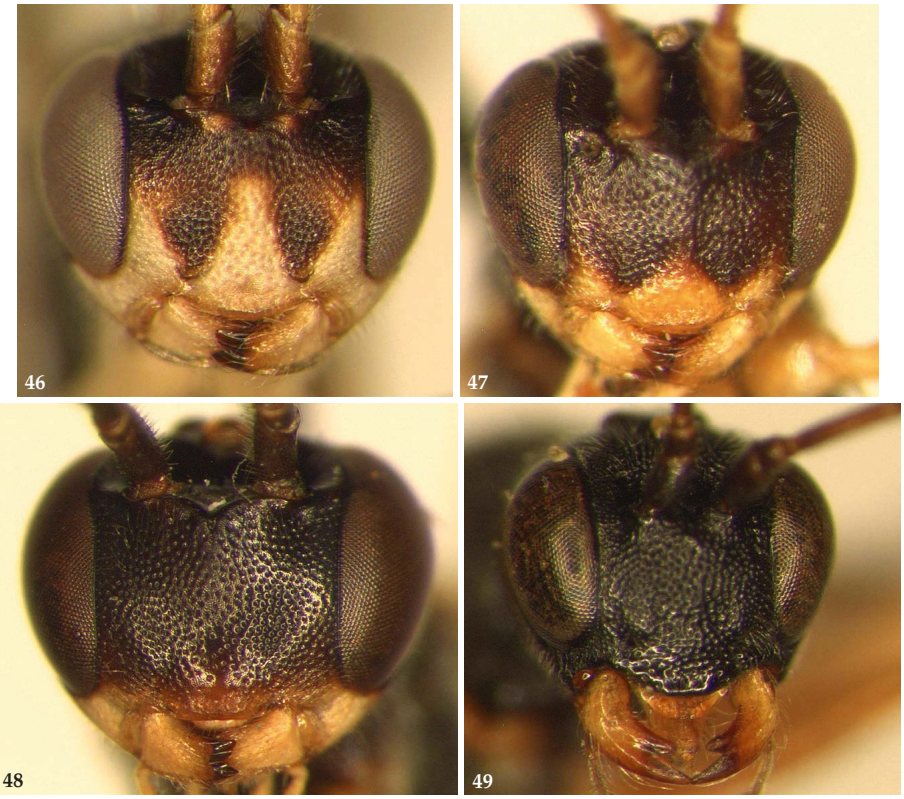

Figs 46–49. Face of ♀♀ from frontal: **46–47.** *A. tridentatum* Schwenke; **48.** *A. varipes* (Holmgren); **49.** *A. nigriceps* (Brischke).

Figs 50–51. *A. striatum* (Brischke) ♀: **50.** Hind metatarsus; **51.** Hind trochanter.

reddish. Legs yellowish-red, tibia III in the apical 0.1, and tarsus III infuscate. Metasoma blackish, tergite 2 with a narrow yellowish apical margin. Sternites brownish, the frontal ones with yellow median membranous areas. Pterostigma brownish.

Variety: 1 specimen from Britain (EDI): scutellum not pointed.

Hosts. *Amphipyra pyramidea* (Linnaeus, 1758) (Lep., Noctuidae) (ZSM) via Tachinidae (Diptera); *Alsophila aceraria* (Denis & Schiffermüller, 1775) (Lep., Geometridae) via *Phorocera obscura* (Fallén, 1810) (Dipt., Tachinidae) (ZSM).

Material. 38 ♀♀, 29 ♂♂.

Distribution. Czechia (LINZ), Great Britain (EDI, NHM), Ireland* (NHM), Netherlands (CZ), Poland (WARS), Spain* (CS), Switzerland* (LAU).

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Astiphromma (Astiphromma) italicum Schwenke, 1999

Figs 5, 7, 33, 66, 77

Astiphromma italicum Schwenke, 1999: 22, ♀♂.
Holotype ♀: Pizzighettone/I, 12.5.73, F. Frilli (AEI). Holotype not seen, paratypes (ZSM) studied.

Astiphromma contum Schwenke, 1999: 24, syn. nov.
Holotype ♀: Ovindoli/I, Dint. 23.6.88, A. Scaramozzino (Scaramozzino). Holotype not seen, paratypes (ZSM) studied.

Taxonomical remark. From the Collection Aubert in Lausanne I received a female which is labelled as: Paratype, *Astiphromma tenuicaudatus* ♀ Sch, *Astiphromma tenuicaudatum* n. sp. ♀ Schwenke, 1972 PARATYPUS, J. F. Aubert 5.6.1955 Bois de Vincennes-PARIS. The studied specimen belongs to *A. italicum*. The name *A. tenuicaudatus* has never been published by Schwenke, and I do not know if there is a "holotype".

Description of ♀

Body length 5–6 mm. Flagellum with 31–35 flagellomeres, FEI 0.55–0.57, preapical flagellomeres about 1.3–1.5 × as long as wide, apical one blunt or pointed. Lower mandibular tooth slightly larger than the upper one (Fig. 66). Temple strongly narrowed behind eye, TEI 0.55–0.65 (Fig. 7). Face very wide, lateral margins parallel or convergent ventrally, its minimal width 0.90–1.0 × eye length (Fig. 33). Frons and vertex finely granulate, but shining, temple punctate. OOD 1.2–1.6. Malar space finely striate, MI 0.5. Genal carina joining the hypostomal one at or very close to mandibular base (Fig. 5), hypostomal carina slightly elevated.

Lower half of mesopleurum with fine and very scattered punctures. Scutellum usually with short lateral carina in the basal 0.3–0.5. Carinae of propodeum weak, apical half of area superomedia often with faint lateral carinae. Area superomedia about 2 × as long as wide. Costula often faint. Area petiolaris wider than long, 0.3 × as long as propodeum. Femur III stout, 3.3–4.0 × as long as wide. Inner spur of tibia III 0.55–0.60 × as long as metatarsus III. Metatarsus III 6.0–6.5 × as long as wide and 0.42–0.5 × as long as tibia III. Claw III with short basal teeth.

Nervulus strongly postfurcal (0.5–0.7 × its length). Nervellus in hind wing intercepted in apical 0.2–0.3. second recurrent vein joining areolet in its middle. Pterostigma slender, about 3.5–3.8 × as long as wide, RI 1.1–1.2, radius behind areolet straight or slightly sinusoid.

First tergite 2.7–3.5 × and postpetiole 1.3–1.7 × as long as wide, the latter sometimes with a median longitudinal rim. Second tergite 0.85–0.9 × (in one specimen 1.4 × – due to preparation?) as long as wide, its thyridium large, longer than wide or roundish. Ovipositor sheath 6.4–7.6 × as long as wide and 0.95–1.0 × as long as metatarsus III, stab-shaped, slightly narrowed apically (Fig. 77).

Colour: Black. Flagellum infuscate. Narrow ventral margin of clypeus and face and malar space mainly reddish-yellow. Tegula and small spot at hind edge of pronotum yellowish. Metasoma black, reddish-yellow are narrow hind margin of tergite 2, sandclock-shaped median stripe of tergite 3, and small basal spot on tergite 4. Sternites yellow, sides brown. Pterostigma brownish. Legs reddish-yellow, femur III more reddish, at apex slightly infuscate dorsally. Tibia III infuscate in the apical 0.2–0.25, tarsus III more or less infuscate. Ovipositor sheath black, with pale tip.

Description of ♂

Body length 5–6 mm. Flagellum with 30–34 segments. Temple slightly narrowed behind eye, TEI 0.5–0.55. OOD 1.2–1.3. Lateral margins of face convergent ventrally. Scutellum with lateral carina in the basal 0.3–0.5. Lateral carinae of area superomedia slightly narrowed apically, costula lacking. Femur III 3.8–3.9 × as long as wide. Postpetiole often with median rim. Clasper about 1.0–1.2 × as long as the second tarsomere III.

Colour: Black. Flagellum infuscate. Clypeus, face, malar space, lower 0.1–0.2 of temple, scapus and pedicellus ventrally, tegula, subtegular ridge, and hind edge of pronotum yellowish. Often propleurum and usually pronotum reddish-brown or reddish-yellow. Coxae I–II and all trochanters and trochantelli cream-yellow. Legs otherwise reddish-yellow, apical 0.15–0.2 of tibia III, and tarsus III infuscate. Metasoma black. Yellowish-red are narrow median stripe or triangular apical spot of tergite 2, sandclock-shaped median stripe of tergite 3, and basal third of tergite 4. Sternites 2–4 yellow, the following ones blackish. Pterostigma brown.

Hosts. Unknown.

Material. 13 ♀♀, 15 ♂♂.

Distribution. Austria* (LINZ), Bulgaria* (ZSM), Czechia* (LINZ), France* (CJ, LAU), Germany* (CR, ZSM), Great Britain* (EDI, NHM), Italy (ZSM), Netherlands* (CZ).

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Astiphromma (Astiphromma) leucogrammum (Holmgren, 1860)

Figs 13, 34, 78, 97, 108, 125

Mesochorus leucogrammus Holmgren, 1860: 121, ♀♂. Lectotype ♀: Upl, Hfgn (STOCK), studied.

Description of ♀

Body length 5.5–6.0 mm. Flagellum slender, with 29–32 flagellomeres, FEI 0.75–0.9, preapical segments about 2 × as long as wide, apical flagellomere pointed. Mandibular teeth equally sized. Face wide, punctate, matt, lateral margins divergent ventrally (Fig. 34). Frons granulate, matt laterally. Temple slightly narrowed behind eye, TEI 0.8–1.0, without distinct punctures (Fig. 13). OOD 1.5–1.7. MI 0.7. Genal carina joining the hypostomal one far from mandibular base (distance as malar length), hypostomal carina not elevated.

Lower part of mesopleurum almost smooth. Scutellum not carinate. Area superomedia with almost parallel lateral carinae, about 1.8–2 × as long as wide. Area basalis and costula usually faint or lacking. Area petiolaris small, distinctly wider than long, 0.2–0.25 × as long as propodeum. Femur III 4.8–5.8 × as long as wide. Inner spur of tibia III about 0.42 × as long as metatarsus III. Metatarsus III about 0.52 × as long as tibia III. Claw III with small basal teeth.

Nervulus interstitial. Nervellus intercepted in the apical 0.2–0.3, discoidella indistinct. second recurrent vein joining the areolet in its middle. Pterostigma about 3.3–3.8 × as long as wide. RI 1.0–1.1.

First tergite 2.5–2.7 × and postpetiole 1.3–1.6 × as long as wide. Postpetiole with distinct longitudinal striae or rugae at least in the apical half (Fig. 125). Second tergite as long as wide, its thyridium roundish, large. Ovipositor slender, bent upwards, 8.7–10 × as long as wide and 0.7–0.8 × as long as metatarsus III (Fig. 78).

Colour: Black. Cream-yellow are lower 0.5 of temple, face and clypeus, outer side of antenna, mandible except teeth, coxae and trochanters I–II, propleurum and pronotum laterally, and mesosternum. Mesopleurum reddish ventrally and black dorsally, with a sharp border between both colours (Fig. 108). Legs yellowish-red, Apex of coxa III with infuscate dorsal spot. Tibiae often with narrow infuscate base. Tibia III and sometimes femur III with a more or less clear brownish stripe on the outer sides. Tergites 1–2 black, tergite 2 with a small triangular yellowish spot at apex, tergites 3–4 with yellowish median stripe, brown laterally. Following tergites brown with yellowish hind margins (vespoid colour pattern), their epipleura and sternites yellow. Ovipositor sheath black, with pale tip.

Variety: One British ♀ (EDI) has a completely blackish metasoma with ivory apical margins of tergites 2–7.

Description of ♂

Body length 6 mm. Flagellum with 30 segments, preapical flagellomeres about 1.5 times as long as wide. Face wide, lateral margins more or less parallel. MI about 0.5. OOD 1.4. Pterostigma wide, about 3.2 × as long as wide. Femur III about 4.6 × as long as wide. Claw III with short basal teeth. Clasper about 1.0–1.2 × as long as second tarsomere III, with thickened apex (Fig. 97).

Colour: Black. Flagellum reddish basally, infuscate apically. Yellowish are mandible except teeth, clypeus, face, gena, lower half of temple, propleurum, anterior margin and hind edge of pronotum, tegula, subtegular ridge, mesosternum and lower half of mesopleurum, metapleurum ventrally. Tergite 2 with a narrow apical yellow margin, tergites 3–4 with central yellow stripe, tergites 5–7 blackish, sometimes with ivory apical margins. Tibia III with narrow dark base. Pterostigma brown. Otherwise like the female.

Hosts. *Eupithecia* sp. (Lep., Geometridae) via various Braconidae (Hym.) and Ichneumonidae (Hym.) (Schwenke, 1999).

Material. 9 ♀♀, 3 ♂♂.

Distribution. Austria (NHM), France (NHM), Germany (ZSM), Sweden (STOCK).

Astiphromma (Dolichochorus) longiceps (Strobl, 1904)

Figs 35, 79, 113, 121

Dolichochorus longiceps Strobl, 1904: 108, ♀. Types lost.

Description of ♀

Body length 5–6 mm. Flagellum with 29 flagellomeres, long and slender, FEI 1.0–1.1, preapical segments 2 × as long as wide, the apical flagellomere pointed. Mandibular teeth equally sized. Face granulate, without distinct punctures, its minimal width 0.9 × eye length (Fig. 35). Gena, frons and temple shining and with almost smooth surface. TEI 1.0. OOD 1.6. MI 1.2. Genal carina joining the hypostomal one far from mandibular base.

Mesopleurum almost smooth ventrally. Scutellum not carinate. Area superomedia wide basally and strongly narrowed apically, about 1.8 × as long as wide. Costula and area basalis faint. Area petiolaris about 0.25 × as long as propodeum. Coxa III granulate, matt. Femur III 5.6 × as long as wide.

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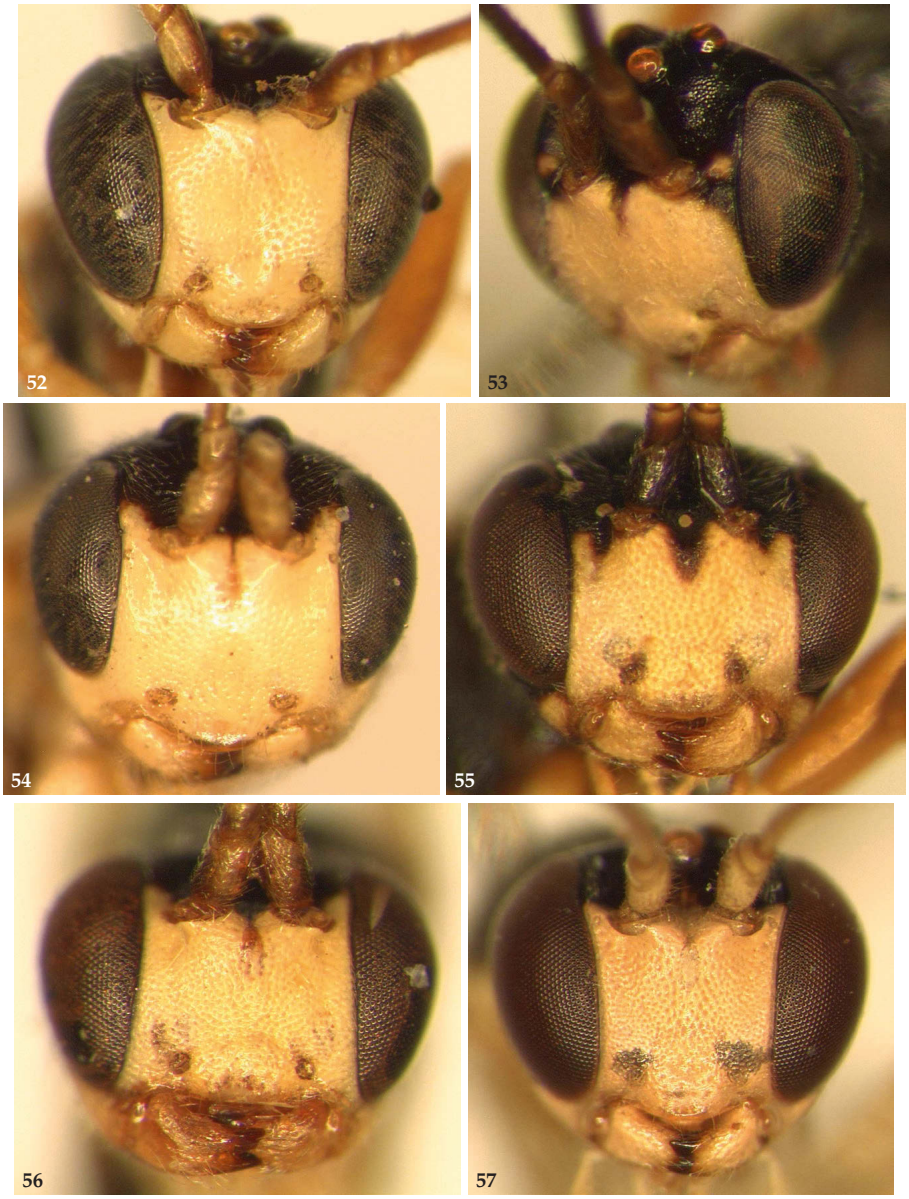

Figs 52–57. Face of ♂♂ from frontal: **52.** *A. albitarse* (Brischke); **53.** *A. anale* (Holmgren); **54.** *A. buccatum* (Thomson); **55.** *A. nigrocoxatum* (Strobl); **56.** *A. simplex* (Thomson); **57.** *A. splenium* (Curtis).

Inner spur of tibia III 0.4× as long as metatarsus III, metatarsus 0.54× as long as tibia III. Claw III without distinct teeth.

Nervulus of front wing interstitial, nervellus of hind wing usually not intercepted, sometimes slightly intercepted in the apical 0.2, but without discoidella (Fig. 113). second recurrent vein joining areolet basal to its middle. Pterostigma about 3.5× as long as wide.

First tergite 2.2× and postpetiole 1.3× as long as wide, the latter with strong longitudinal striation (Fig. 121). Second tergite as long as wide, its thyridium small, strongly transverse. Ovipositor sheath about 8–8.6× as long as wide and 0.67–0.73×

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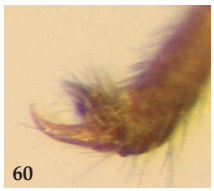
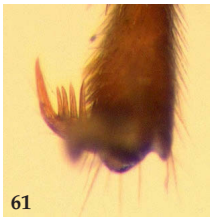
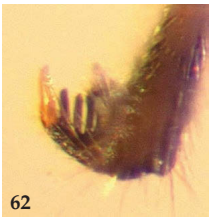
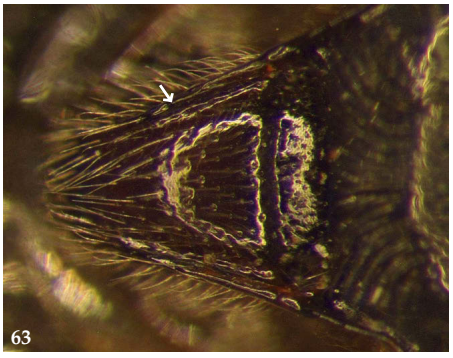


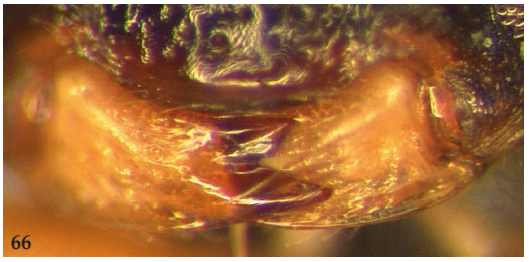




Figs 58–62. Hind claws of ♀♀: **58.** *A. hirsutum* (Bridgman); **59.** *A. diversum* Schwenke; **60.** *A. tenuicorne* (Thomson); **61.** *A. dorsale* (Holmgren); **62.** *A. nigriceps nigriceps* (Brischke).



Figs 63–64. **63.** Scutellum of *A. albitarse* (Brische) ♀, Arrow shows lateral carina; **64.** Mesoscutum of *A. buccatum* (Thomson) ♂.



Figs 65–66. **65.** Apical flagellomeres of *A. flagellator* spec. nov.; **66.** Mandible of *A. italicum* Schwenke ♀, Arrow shows larger lower tooth.

as long as metatarsus III, slightly bent towards dorsal (Fig. 79).

Colour: Black. Cream-yellow are palps, mandibles except teeth, clypeus and face except a large w-shaped median spot (Fig. 35), malar space, temple in the lower 0.3, and coxae and trochanters I–II. Flagellum brownish, yellowish below. Legs yellowish-red, coxa III more or less infuscate, femur III brownish-yellow dorsally, tibia III infuscate on outer side and apical 0.2–0.25, tarsus III brownish. Pterostigma brownish, with paler base. Tergite 2 with a yellow band in the apical 0.25, tergites 3–4 with median sandglass-shaped yellow stripes and with brownish sides, following tergites brownish. Sternites and hypopygium yellow, with brownish sides. Ovipositor sheath black, reddish in the apical 0.2.

♂ unknown.

Hosts. Unknown.

Material. 7♀♀.

Distribution. Austria (ZSM), Germany (ZSM), Great Britain (EDI), Sweden (STOCK)

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Astiphromma (Astiphromma) luridum Schwenke, 1999

Figs 36, 80, 98

Astiphromma luridum Schwenke, 1999: 18, ♀♂.
Holotype ♀: Wolfsegg a.H./Oberösterr., 15.5.87, M. Schwarz (ZSM), holotype and paratypes studied.

Taxonomical remark. In some ♂♂ of *A. luridum* Schwenke, the characteristic striation on postpetiole is superficial and indistinct. These specimens resemble ♂♂ of *A. tenuicorne* (Thomson), but the latter ones have a reddish colour on lower mesopleurum, partly blackish sides of pronotum, and large transverse thyridia on their second tergites.

Description of ♀

Body length 5–6 mm. Flagellum stout, filiform, with 36–37 flagellomeres, FEI 0.8, preapical flagellomeres about 1.7 × as long as wide. Mandibular teeth of the equal size. Face with superficial puncture, granulate and matt, its minimal width 1.0 × eye length. Lateral margins of face parallel ventrally (Fig. 36). Temple narrowed behind eye, TEI 0.8–0.9. OOD 1.5. Genal carina joining the hypostomal one far from mandibular base. Hypostomal carina not elevated.

Lower part of mesopleurum with dense but fine punctation. Scutellum not carinate. Propodeum with almost complete carination, area superomedia slender, 2.5–3 × as long as wide, confluent with area basalis, costula in its basal third. Area petiolaris short, wider than long, about 0.2 × as long as propodeum. Femur III 4.8–5.0 × as long as wide. Metatarsus III about 0.5 × as long as tibia III. Inner spur of tibia III 0.5 × as long as metatarsus III. Claw III with small basal teeth.

Nervulus interstitial or slightly postfurcal. Nervellus intercepted in the lower 0.2. Pterostigma about 3.8 × as long as wide.

First tergite 2.2–2.3 × and postpetiole 1.12–1.25 × as long as wide, the latter with fine longitudinal striation or rugulo-striation. Second tergite about 0.95 × as long as wide, with indistinct thyridium at frontal margin. Ovipositor sheath short, 5.5–6.0 × as long as wide, and 0.66–0.7 × as long as metatarsus III, slightly bent upwards (Fig. 80).

Colour: Black. Yellowish are clypeus, malar space, mandibles except teeth, lower 0.2 of temple, lower 0.2 of facial orbit (Fig. 36), subtegular ridge, hind edge of pronotum, tegula, small spot on lower mesopleurum, coxae and trochanters I–II, apical margin of coxa III, sternites, apical transverse stripes of tergites 2–7. Legs reddish, tibia III slightly infuscate in the apical third, tarsus III brownish. Coxa III with infuscate stripe dorsally. Pterostigma pale brownish. Ovipositor sheath reddish.

Description of ♂

Body length 5–6 mm. Flagellum with 35–38 flagellomeres, FEI 0.8. preapical segments about 2 × as long as wide. Apical margin of clypeus rounded, clypeus not protruding. Lateral margins of face parallel. Head granulate, face matt, with superficial punctation. TEI 0.9–1.1. OOD 1.3–1.4. Mesopleurum matt, with dense but superficial puncture. Area superomedia wide, its sides slightly narrowed apically. Femur III 5.3–5.4 × as long as wide. Pterostigma wide, about 3.1–3.2 × as long as wide. RI 0.9. First tergite 2.0 × and postpetiole 1.25 × as long as wide. Striation of postpetiole sometimes indistinct. Second tergite 0.9 × as long as wide, without distinct thyridium. Clasper about 0.8 × as long as second tarsomere III, slightly clubbed (Fig. 98).

Colour: Black. Cream-yellowish are mandible except teeth, palps, clypeus, face, lower frontal orbit, temple in the lower 0.25–0.4, scape, pedicellus and first flagellomere ventrally, propleurum, pronotum (sometimes only hind edge and anterior margin), often ventral half of mesopleurum, mesosternum, subtegular ridge, tegula, sometimes anterolateral markings on mesoscutum, coxae, trochanters and trochantelli I–II, often apical margin of coxa III, trochantellus III, apical transverse bands and epipleura of tergites 3–7. Tergite 2 with reddish triangular spot in the apical 0.2, tergite 3 with a reddish median stripe. Sternites reddish, with brownish lateral spots. Coxa III, and often trochanter III with infuscate dorsal stripes. Legs otherwise reddish, tibia III in the apical 0.2, and tarsus III (sometimes also tarsus II) more or less diffusely infuscate.

Hosts. Unknown.

Material. 4 ♀♀, 6 ♂♂ (ZSM).

Distribution. Austria (LINZ), Germany (CR, ZSM), Norway* (NHM).

Astiphromma (Mesochorella) nigriceps nigriceps (Brischke, 1880)

Figs 17, 49, 62, 82, 111, 117

Mesochorus nigriceps Brischke, 1880: 192, ♂, types lost.

Taxonomical remark. Schwenke (1999, 2000) stated that the dorsolateral carina of first tergite is lacking in *Mesochorella*. However, in the examined material the carina is faint in larger parts, but usually visible at least behind the spiracle and/or at the apical margin (Fig. 3). *A. nigriceps* (Brischke) is the only *Astiphromma* species parasitizing Coleoptera, but the primary parasitoid remains unknown.

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Description of ♀

Mesosoma coarsely and densely punctate. Scutellum not carinate. Area basalis pointed apically, Area superomedia pentagonal, short, about 1.7 × as long as wide. Area petiolaris very large, hexagonal, about 0.4 × as long as propodeum. Femur III 3.9 × as long as wide. Inner spur of tibia III very short, 0.25–0.3 × as long as metatarsus III, metatarsus III about 0.4 × as long as tibia III. Claw III strongly curved apically, with long blackish broadened teeth (Fig. 62).

Nervulus almost interstitial. Nervellus in hind wing intercepted at apical 0.33. Pterostigma very wide, about 2.5 × as long as wide, RI 1.15, second recurrent vein usually joining the areolet basal to its middle (Fig. 111).

First tergite 2.6 × and postpetiole 1.3 × as long as wide, the latter with weak and partly obsolete dorsolateral carina, a strong longitudinal rim centrally and some fine striae apically. Second tergite about 0.8 × as long as wide, its thyridium roundish. Ovipositor sheath 8.1 × as long as wide, about 1.5 × as long as metatarsus III, slightly lanceolate, widened beyond middle and narrowed apically (Fig. 82).

Colour: Black. Flagellum reddish basally, infuscate apically. Legs except coxae and trochanters reddish-yellow. Pterostigma yellowish. Tergite 1 with a triangular reddish spot apically, following tergites reddish. Tergite 2 with large, and tergite 3 with small brown spots basolaterally. Sternites reddish, sometimes with lateral brownish spots. Ovipositor sheath black.

Description of ♂

Body length 5 mm. Flagellum with 30–31 flagellomeres, FEI 0.65, preapical segments about 1.5 × as long as wide. Head with coarse and dense puncture. Temples parallel behind eyes, TEI 1.0. OOD 1.4–1.6. Mesosoma coarsely and densely punctured. Scutellum not carinate. Area petiolaris very large, hexagonal. Nervulus almost interstitial or slightly postfurcal (0.2 its length). Nervellus in hind wing intercepted at apical 0.4. Pterostigma very wide, 2.8–3.3 × as long as wide. Femur III 4.2 × as long as wide. Postpetiole with weak and partly obsolete dorsolateral carina, a strong longitudinal rim centrally and some fine striae apically. Clasper about as long as the second tarsomere III and slightly bent upwards. Claw III strongly curved at apex, with long blackish teeth.

Colour: Black. Flagellum brown, apically blackish. Face black. Mandibles except teeth and tegula yellow. Pterostigma yellowish, paler centrally. All coxae black, narrowly reddish apically. Legs reddish-brown, tarsi brownish. Tergite 2 with triangular reddish stripe apically, tergites 3–7 reddish, side of tergite 3 with brown spots, sternites yellow-red, sternites 2–4 with brown lateral spots (Fig.117).

Hosts. *Colaphellus sophiae* (Schaller, 1783) (Col., Chrysomelidae) (Schwenke 2000).

Material. 12 ♀♀, 8 ♂♂.

Distribution. Bulgaria (LINZ, ZSM), Greece* (ZSM), Romania (LINZ), Serbia* (ZSM), Slovakia (LINZ), Turkey* (ZSM).

Astiphromma (Mesochorella) nigriceps asiaticus ssp. nov.

Fig. 116

Holotypus ♀: Usbekistan 80 km SO Karschi 31.4.91 Halada (LINZ)

Paratypes ♀: Usbekistan 80 km SO Karschi 31.4.91 Halada (KR), ♀: Kasachstan mer. Chagir 42,4N 68,8E 40 km S Aris leg. J. Halada 6.5.94 (LINZ), ♀: Kasachstan mer. 10 km E Ddjambal 31.5.94 leg. J. Halada (LINZ); ♀: Cruciferae, Dagestan Novo Biryuzyak, 20.v.1961 B. A. Vorobyov (NHM); ♀: On Cruciferae, Dagestan Novo Biryuzyak, 24.iv.1961 B. A. Vorobyov (NHM)

Taxonomical remark. This subspecies from the Caucasus and Central Asia differs from the European subspecies by a lower number of flagellomeres (25–26) and different coloration of the metasoma: all tergites blackish, with narrow yellowish or reddish apical margins. Femur III 3.9 × as long as wide, ovipositor sheath 8.0 × as long as wide and 1.5 × as long as metatarsus III. Structure and colour pattern otherwise as in *A. nigriceps nigriceps* (Brischke).

Description of ♀

Body length 5–5.5 mm. Flagellum with 25–26 flagellomeres, FEI 0.5–0.55, preapical segments about 1.5 × as long as wide, apical flagellomere pointed. Head with coarse, dense punctures, face with rugose punctation, matt, but clypeus apically almost smooth and shining. Lower mandibular tooth much larger than the upper one (Fig. 49). Temple about as wide as the eye and seen from dorsal slightly widened behind eyes, punctate and shining, TEI 1.0–1.1. Ocelli very small, OOD 2.0. MI 0.3. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Mesosoma coarsely and densely punctured. Scutellum not carinate. Area basalis pointed apically. Area superomedia short, about 1.5–1.7 × as long as wide. Area petiolaris very large, hexagonal, 0.4–0.45 × as long as propodeum. Femur III 3.9 × as long as wide. Inner spur of tibia III very short, 0.25–0.3 × as long as metatarsus III, metatarsus III about 0.35–0.4 × as long as tibia III. Claw III strongly curved

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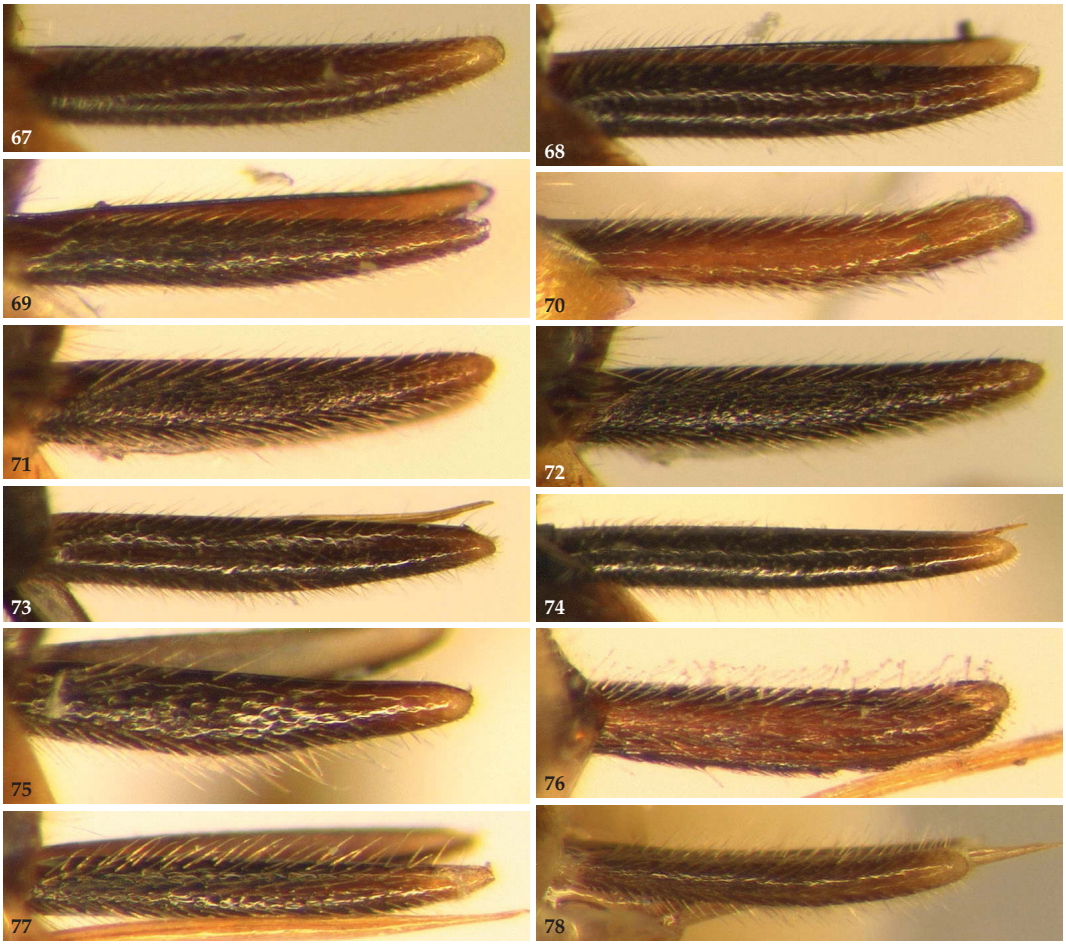

Figs 67–78. Ovipositor sheaths of ♀♀ from lateral: **67.** *A. aggressor* (Fabricius); **68.** *A. albitarse* (Brischke); **69.** *A. alpinum* Roman; **70.** *A. anale* (Holmgren); **71.** *A. buccatum* (Thomson); **72.** *A. diversum* Schwenke; **73.** *A. dorsale* (Holmgren); **74.** *A. hirsutum* (Bridgman); **75.** *A. flagellator* spec. nov.; **76.** *A. flavoventrale* spec. nov.; **77.** *A. italicum* Schwenke; **78.** *A. leucogrammum* (Holmgren).

apically, with long blackish broadened teeth (Fig. 62).

Nervulus slightly postfurcal (0.2 its length). Nervellus in hind wing intercepted at apical 0.3. Pterostigma wide, about 2.9 × as long as wide, RI 1.1, second recurrent vein joining areolet in its middle.

First tergite 2.2 × and postpetiole 1.1–1.2 × as long as wide, the latter with weak and partly obsolete dorsolateral carina, and some fine striae apically. Second tergite about 0.75 × as long as wide, its thyridium small, roundish. Ovipositor sheath about 8.0 × as long as wide, about 1.5 × as long as metatarsus III, slightly lanceolate, widened beyond middle and narrowed apically.

Colour: Black. Flagellum reddish basally, infuscate apically. Palps and mandible except teeth yellowish. Legs except coxae and trochanters reddish-yellow. Pterostigma yellowish. Tergite 1 black, following tergites with a more or less distinct yellowish apical margin (vespoid colour pattern). Sternites blackish. Ovipositor sheath black.

♂ unknown.

Material. 6 ♀♀.

Distribution. Kasachstan* (LINZ), Uzbekistan* (LINZ), Russia (Dagestan)* (NHM)

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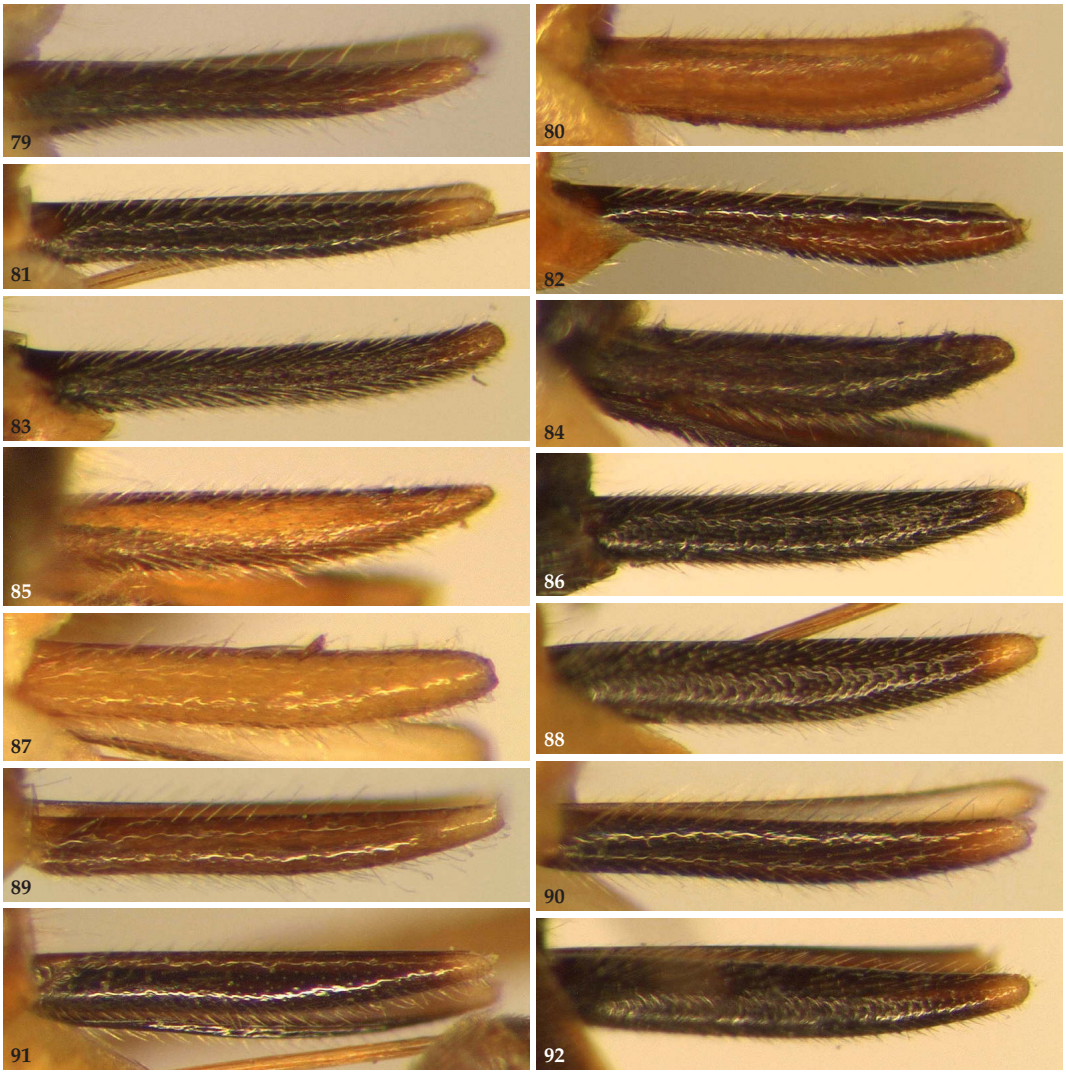

Figs 79–92. Ovipositor sheaths of ♀♀ from lateral: **79.** *A. longiceps* (Strobl); **80.** *A. luridum* Schwenke; **81.** *A. striatum* (Brischke); **82.** *A. nigriceps* (Brischke); **83.** *A. nigrocoxatum* (Strobl); **84.** *A. pictum* (Brischke); **85.** *A. rimosum* Schwenke; **86.** *A. scutellatum* (Gravenhorst); **87.** *A. simplex* (Thomson); **88.** *A. splenium* (Curtis); **89.** *A. tenuicorne* (Thomson); **90.** *A. tridentatum* Schwenke; **91.** *A. uliginosum* Schwenke; **92.** *A. varipes* (Holmgren).

Astiphromma (Astiphromma) nigrocoxatum (Strobl, 1904)

Figs 8, 38, 83, 99

Astiphromma anale var. *nigrocoxatum* Strobl, 1904: 103, ♂, types lost.

Demophorellus mimulus Hedwig, 1955: 379, ♂, synonymized by Horstmann (1981: 72).

Lectotype ♂: Gifhorn 8.5.52, K. HEDWIG (ZSM), not studied.

Astiphromma interstitiale Constantineanu & Mustafa, 1969: 314–315, ♂, synonymized by Schwenke (1999: 21), type not studied.

Description of ♀

Body length 5–6.5 mm. Flagellum with 25–30 flagellomeres, FEI 0.6, preapical flagellomeres 1.3–1.5 × as long as wide, apical one blunt to pointed. Mandibular teeth of equal size. Face punctate, matt, lateral margins parallel or slightly divergent ventrally, its

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minimal width 1.0–1.1 × eye length. Temple strongly narrowed behind eye, granulate and with superficial punctures, TEI 1.0–1.1 (Fig. 8). Vertex finely granulate, matt. OOD 1.7–2.0. MI 0.7. Genal carina joining the hypostomal one distant from mandibular base (by half malar length), hypostomal carina not elevated.

Mesoscutum with superficial punctation, granulate and matt. Lower part of mesopleurum with moderately dense and coarse punctures. Scutellum not carinate. Propodeum with complete carination. Area superomedia short, about 1.5 × as long as wide. Area petiolaris large, hexagonal, about 0.4 × as long as propodeum. Femur III 4.2–4.3 × as long as wide. Inner spur of tibia III 0.5 × as long as metatarsus III. Metatarsus III 7–8 × as long as wide and 0.4 × as long as tibia III, claw III with short basal teeth.

Nervulus usually interstitial, sometimes slightly ante- or postfurcal. Nervellus of hind wing intercepted in the apical 0.25–0.3. Pterostigma wide, 3.1–3.2 × as long as wide, RI 1.1, radius behind areolet straight or slightly bent to anterior wing margin. second recurrent vein joining areolet in its middle.

First tergite 2.5 × and postpetiole about 1.5 × as long as wide, the latter sometimes with median longitudinal impression and/or fine striae apically. Second tergite 0.8–0.85 × as long as wide, its thyridium small, roundish. Ovipositor sheath 8.5 × as long as wide, about 1.2 × as long as metatarsus III, slightly narrowed in the apical 0.3 and bent upwards (Fig. 83).

Colour: Black. Ventral margin of face and clypeus black (Fig. 38). Pedicellus and basal flagellomeres more or less reddish, flagellum apically or completely infuscate. Hind edge of pronotum, and tegula yellow. Coxae I–II brownish, apically yellowish. Coxa III and trochanter III brown to black. Legs otherwise yellow, femur III reddish-brown to brown, often narrowly yellow at base and apex. Tarsus III infuscate. Tergite 2 with yellow apical margin, and tergite 3 with a sandclock-shaped reddish or yellowish stripe, sometimes more or less black, following tergites blackish, apical membranous parts more or less yellowish. Sternites yellow medially and apically, brown laterally. Pterostigma yellowish with darker margins. Ovipositor sheath black, with pale tip.

Description of ♂

Body length 4.5–6.5 mm. Flagellum with 27–29 flagellomeres, preapical segments about 1.5 × as long as wide. TEI 1.0–1.1. OOD 1.7–2.0. Lateral margins of face slightly divergent. Lower part of mesopleurum with fine scattered punctation or almost smooth. Pterostigma wide, about 3 × as long as wide. Femur III 4.4–4.5 × as long as wide. Claw III with basal teeth. Clasper 1.0–1.2 × as long as the second tarsomere III, with fine longitudinal striation on outer side, inner side smooth and shining (Fig. 99).

Colour: Black. Yellowish are palps, mandibles, clypeus, malar space and face. Clypeal foveae and short median longitudinal stripe of face between antennal scrobes brown to black. Coxae more or less brown in the basal parts, apically yellowish. Legs yellowish-brown, all trochanters and trochantelli yellow. Femur III brown, tibia III often infuscate on outer side and/or at apex, tarsus III usually brownish. Tergite 2 yellowish in the apical 0.2, tergite 3 yellowish, with brown sides, or blackish with sandclock-shaped yellowish stripe. Sternites brown or black, sternites 2–3(–4) with yellow median stripe. Pterostigma yellowish-brown.

Hosts. Unknown.

Material. 31 ♀♀, 66 ♂♂.

Distribution. Austria (CS), Bulgaria* (ZSM), Czechia* (LINZ), France* (CZ, NHM, ZSM), Germany (STOCK, ZSM), Great Britain (NHM), Switzerland (CS, LAU, NHM), Turkey* (LINZ).

Astiphromma peltolatum Schwenke, 2004

Taxonomical remark. Schwenke (2004: 83) stated in his original description that the holotype is deposited in the Horniman Museum/London. According to the personal communication of the curator, no material of the taxon has been found there. The Finnish material determined as *A. peltolatum* by Jussila (2010: 6), which I studied, belongs to *A. alpinum* Roman. Therefore, no material of this taxon was available for this revision, and the taxon is unknown to me.

Description of ♀
(translation of Schwenke, 2004: 83)

Body length 7.0 mm. Facial margins divergent ventrally, TEI about 1.0. Ocelli very small, OOD about 2.0. Ovipositor sheath shorter than the metatarsus III, apically slightly narrowed and bent to dorsal.

Colour: Clypeus red, face black. Pterostigma dark brownish-grey. Meso- and metasoma black, wing veins blackish, legs yellow, tergites with narrow yellow hind margins.

♂ unknown.

Distribution. Finland.

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Astiphromma (Astiphromma) pictum (Brischke, 1880)

Figs 39, 84, 122

Mesochorus pictus Brischke, 1880: 186, ♂, types lost.
Mesochorus (*Astiphrommus*) *incidens* Thomson, 1886: 331, ♀♂, locus typicus England, synonymized by Schmiedeknecht (1910: 1952), types lost (Fitton, 1982: 53).

Description of ♀

Body length 5.2–8.0 mm. Flagellum stout, filiform, with 31–35 flagellomeres, FEI 0.75, preapical flagellomeres 1.1–1.5× as long as wide, apical one blunt. Head including frons with coarse and dense punctures and smooth intervals (Fig. 39). Lower mandibular tooth larger than the upper one. Temples parallel behind the eyes, TEI 1.0. Minimal width of face 0.9–0.95× eye length, lateral margins divergent ventrally. OOD 1.3. MI 0.4–0.5. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina strongly elevated (as the diameter of mandibular palpomeres).

Notaulus strongly impressed. Ventral part of mesopleurum with dense coarse punctation. Scutellum not carinate. Propodeum with complete carination. Are superomedia slender, about 2.3× as long as wide, its sides strongly narrowed apically. Area petiolaris short, wider than long, about 0.25× as long as propodeum. Femur III 4.5× as long as wide. Metatarsus III about 0.45× as long as tibia III. Inner spur of tibia III 0.43× as long as metatarsus III. Metatarsus III with apical rings of short bristles (as in *A. striatum*). Claw III with distinct teeth.

Nervulus interstitial or slightly antefurcal. Nervellus of hind wing intercepted in the apical 0.2. Pterostigma about 3.3–3.5× as long as wide. RI 1.1, radius behind areolet straight. second recurrent vein joining areolet apical of its middle.

First tergite 2.4×, and postpetiole 1.1× as long as wide, the latter with more or less strong longitudinal striation (Fig. 122). Second tergite about as long as wide, without distinct thyridium. Ovipositor sheath short, 5.4× as long as wide, about 0.75× as long as metatarsus III, slightly bent upwards (Fig. 84).

Colour: Black. Cream-yellow are sides of (or rarely entire) clypeus, malar space, mandible except teeth (Fig. 39), pedicellus and basal flagellar segments on outer side, lateral spot on the anterior margin and upper margin of pronotum, tegula, subtegular ridge, spot on mesosternum, coxae I–II and all trochanters, transverse stripes on hind margins of tergites 3–7, epipleura and sternites. Sternites 2–3 with brownish spots laterally. Legs reddish-yellow, tibia III more or less darkened in the apical 0.2, tarsus III infuscate, with narrow yellow bases of segments. Coxa III with a dorsal blackish stripe. Pronotum in part, mesopleurum mainly and mesoscutum entirely reddish. Mesoscutum with two more or less distinct yellowish stripes. Scutellum yellow, with a diffuse reddish spot on anterior margin. Pterostigma yellowish. Ovipositor sheath black.

Variety 1: One specimen from Finland (CV) has the mesosternum, anterior margin and hind edge of pronotum, spot on subtegular ridge, tegula, and facial orbits widely cream-yellow. Mesosoma otherwise blackish, hind leg reddish-brown.

Description of ♂

Body length 5–7 mm. Hypostomal carina elevated. Malar index 0.6. Pterostigma 3.2× as long as wide. Propodeum rugulose-punctate. Clasper about 0.8× as long as second tarsomere III.

Colour: Black. Cream-yellow are face, clypeus, malar space, lower 0.2 of temple, mandible except teeth, palps, scapus, pedicellus and basal flagellomeres ventrally, coxae, trochanters I–II, all trochantelli, and tibia III on outer side. Pronotum yellow, blackish on collare. Mesopleurum often tricoloured: yellowish ventrally, reddish centrally, and black dorsally. Scutellum yellow, often with reddish basal spot. Metapleurum and propodeum blackish. Epipleura and sternites yellow. Pterostigma pale brownish, margins darker.

Hosts. *Apethymus abdominalis* (Lepeletier, 1823) and *A. serotinus* (Müller, 1776) (Hym., Tenthredinidae) (ZSM), *Periclista* sp. (Hym., Tenthredinidae) (Schwenke 1999).

Material. 27 ♀♀, 28 ♂♂.

Distribution. Finland (ZSM), Germany (CR, ZSM), Great Britain (EDI, NHM), Poland (EDI, WARS), Sweden* (STOCK), Switzerland* (LAU).

Astiphromma (Astiphromma) rimosum Schwenke, 1999

Figs 40, 85, 100, 103, 123

Astiphromma rimosum Schwenke, 1999: 17, ♀♂.
Holotype ♀: Dessau, 5 km NE, 13.5.88, *Alopecurus*-Wiese, H. Zörner (SDEI), not studied.

Description of ♀

Body length 5.5–6 mm. Flagellum with 30 flagellomeres, FEI 0.65–0.7, preapical segments about 1.5× as long as wide, apical flagellomere pointed or blunt. Mandibular teeth of equal size. Temples almost parallel behind eyes, densely punctate, TEI 1.0–1.1. Frons more or less rugose-punctate. Face matt, lateral margins parallel or divergent ventrally, its minimal width 0.95–1.0× eye length (Fig. 49). OOD

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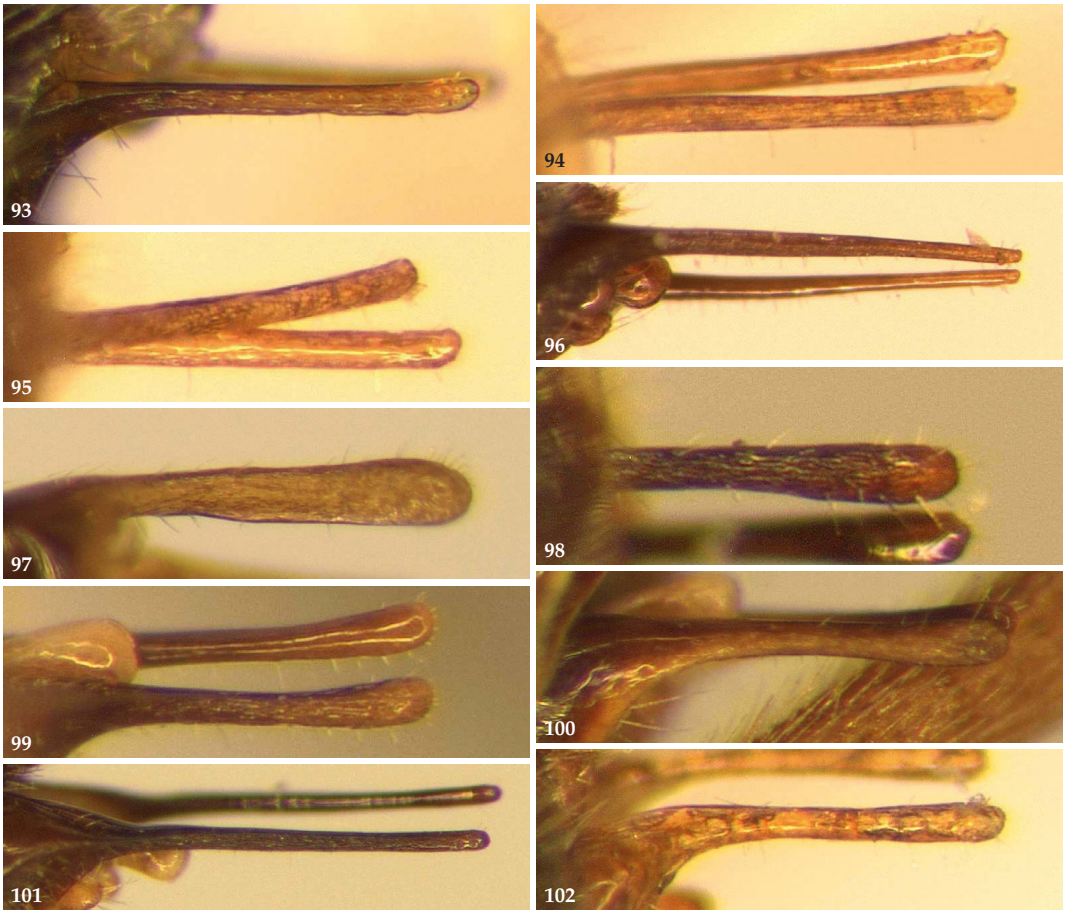

Figs 93–102. Claspers of ♂♂ from lateral: **93.** *A. italicum* Schwenke; **94.** *A. splenium* (Curtis); **95.** *A. uliginosum* Schwenke; **96.** *A. varipes* (Holmgren); **97.** *A. leucogrammum* (Holmgren); **98.** *A. luridum* Schwenke; **99.** *A. nigrocoxatum* (Strobl); **100.** *A. rimosum* Schwenke; **101.** *A. scutellatum* (Gravenhorst); **102.** *A. simplex* (Thomson).

1.6. MI 0.3–0.4. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum with very dense and coarse punctation, partly rugose (Fig. 103). Scutellum not carinate. Propodeum with complete carination. Area superomedia slender, about 2.3–2.5 × as long as wide. Area petiolaris short, distinctly wider than long, 0.25 × as long as propodeum. Femur III about 4.3 × as long as wide. Metatarsus III 7.5–8 × as long as wide and about 0.42 × as long as tibia III, with ring of spines at apex. Inner spur of tibia III 0.52 × as long as metatarsus III. Claw III with some small basal teeth.

Nervulus interstitial or slightly postfurcal (0.2 of its length), pterostigma 3.6–4.0 × as long as wide. RI 1.1–1.2. Nervellus of hind wing intercepted in the apical 0.3, discoidella distinct. Second recurrent vein joining areolet in its middle.

First tergite 2.0 × and postpetiole 1.1–1.2 × as long as wide, the latter with longitudinal rugae and/or striation (Fig. 123). Second tergite 0.85 × as long as wide, without distinct thyridium. Ovipositor sheath about 5.5 × as long as wide and 0.9 × as long as metatarsus III, narrowed in the apical 0.2 (Fig. 85).

Colour: Black. Flagellum reddish. Yellowish are palps and mandible except teeth, clypeus, face except a central blackish spot (Fig. 40), gena, tegula, hind edge of pronotum and spot on subtegular ridge. Scapus and pedicellus brownish dorsally. Scutellum sometimes reddish. Coxae, trochanters and trochantelli I–II, and apical margin of coxa III yellowish. Legs otherwise reddish, tibia III not distinctly infuscate at apex. Postpetiole apically and tergites 2–3(4)

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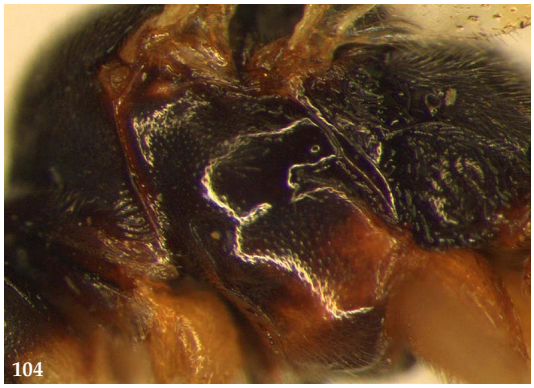

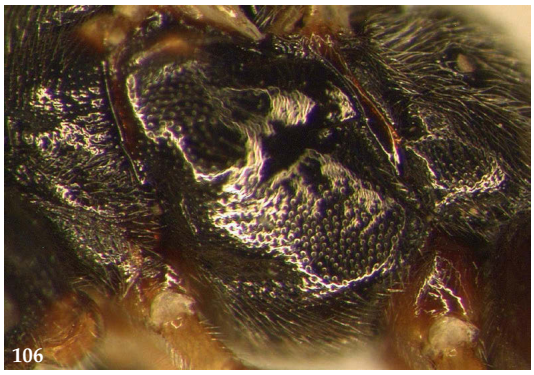

Figs 103–108. Mesosoma of ♀♀ from lateral: **103.** *A. rimosum* Schwenke; **104.** *A. aggressor* (Fabricius); **105.** *A. dorsale* (Holmgren); **106.** *A. hirsutum* (Bridgman); **107.** *A. flavoventrale* spec. nov.; **108.** *A. leucogrammum* (Holmgren).

reddish, the following ones blackish, Tergites 3–7 with yellow transversal stripes apically, sternites yellowish. Pterostigma pale brownish. Ovipositor sheath reddish.

Description of ♂

Body length 6–7 mm. Flagellum with 30 flagellomeres, FEI 0.67. Head with superfical punctation and fine granulation, face and frons matt, temple slightly shining. Lateral margins of face parallel. OOD 1.8. MI 0.4. Lower mesopleurum with coarse and dense punctures. Claws without distinct teeth. Clasper short, 0.7× as long as the second segment of hind tarsus, apically thickened (Fig. 100).
Colour: Black. Sides of pronotum and mesosternum with small yellowish spots, flagellum reddish, infuscate dorsally. Trochantellus III yellow. First tergite

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black, postpetiole partly reddish-brown. Tergites 2–4 reddish, with brown lateral spots and yellow hind margins, tergites 5–7 reddish-brown, with yellow hind margins. Otherwise like the female.

Hosts. Unknown.

Material. 7♀♀, 1♂.

Distribution. Byelorussia* (ZSM), Germany (ZSM), Norway (CR).

Astiphromma (Astiphromma) scutellatum (Gravenhorst, 1829)

Figs 18, 41, 86, 101

Mesochorus scutellatus Gravenhorst, 1829: 973, ♂.
Holotype ♂: without label (WROCLAW), locus typicus Scheidnich/Poland, designated by Horstmann 2003: 33, not studied.

Mesochorus festivus Holmgren, 1860: 121, ♀♂, synonymized by Schmiedeknecht (1910: 1950), not studied.

Astiphromma intermedium Constantineanu & Mustata, 1976: 110–111, syn. nov. Type not studied, interpretation based on the description from Constantineanu & Mustata 1981: 24–25.

Taxonomical remark. *Astiphromma intermedium* has been described and compared with *A. scutellum* by Constantineanu & Mustata (1976). For separation of both taxa, they used the carination of propodeum, position of nervulus, and length of tergites 2–3. However, studying a larger sample of *A. scutellatum*, the structural characteristics of *A. intermedium* are within the variability of *A. scutellatum*. I suggest that both species are synonyms, though I was not able to study the types.

Description of ♀

Body length 6–8 mm. Flagellum with 36–41 flagellomeres, FEI 0.65, preapical flagellomeres 1.5–1.7 × as long as wide. Mandibular teeth of equal size. Face punctate and with fine granulation, shining, lateral margins slightly divergent below, its minimal width 0.9–0.95 × eye length. Frons smooth, vertex with scattered punctation, temple with fine and denser punctures. OOD 1.3. Temple strongly narrowed behind eye, TEI 0.6–0.7 (Fig. 18). MI about 0.6. Genal carina joining the hypostomal one far from mandibular base.

Lower half of mesopleurum with fine and scattered punctation. Scutellum not carinate. Area basalis sometimes faint or obsolete. Area superomedia centrally broad, strongly narrowed apically, 1.8–2 × as long as wide, confluent with area basalis. Area petiolaris large, wider than long, 0.35 × as long as propodeum. Femur III 4.1–4.5 × as long as wide. Inner spur of tibia III 0.5 × as long as metatarsus III. Metatarsus III 10 × as long as wide and about 0.5 × as long as tibia III. Claw III with about 3–4 strong teeth.

Nervulus postfurcal (0.2–0.4 its length). Nervellus of hind wing intercepted in its apical 0.25. Pterostigma about 4.2 × as long as wide, RI 1.0–1.2, radius behind areolet straight or slightly sinusoid.

First tergite 2.6 × and postpetiole about 1.5 × as long as wide. Second tergite 0.9–1.0 × as long as wide, its thyridium small, roundish. Ovipositor sheath 6.3 × as long as wide and 0.9 × as long as metatarsus III, narrowed in the apical third (Fig. 86).

Colour: Black. Flagellum brownish, sometimes reddish below. Ventral margins of clypeus and face narrowly reddish (sometimes completely black), malar space largely yellowish (Fig. 41). Mesosternum, mesopleurum, and scutellum mainly reddish. Pterostigma yellowish. Legs reddish-yellow. Tibia III yellow, darkened in the apical 0.2, tarsus III mainly infuscate, sometimes metatarsus III pale basally. Metasoma blackish, tergite 2 often with a narrow yellow hind margin, and tergite 3 often with an indistinct reddish median stripe. Ovipositor sheath black.

Description of ♂

Body length 6–8 mm. Flagellum with 36–38 flagellomeres. Lateral facial margins more or less parallel. Frons smooth and shining. TEI 0.7–0.8. OOD 1.3. MI 0.5. Femur III 3.9–4.3 × as long as wide. Clasper 1.3–1.6 × as long as the second tarsomere III (Fig. 101).

Colour: Black. Clypeus, face, malar space, and lower temple yellow. Propleurum, pronotum in larger part, mesosternum, mesopleurum and basal half of scutellum red. Legs reddish, coxae and trochanters I–II and tibia III more yellowish, tibia III infuscate in the apical 0.2, tarsus III except base of metatarsus infuscate. Colour otherwise as in females.

Hosts. *Sparganothis pilleriana* (Denis & Schiffermüller, 1775) (Lep., Tortricidae) (Constantineanu & Mustata, 1976), *Diprion* sp. (Hym., Diprionidae) (Schwenke 1999).

Material. 16♀♀, 14♂♂.

Distribution. Austria* (CS), Bulgaria (ZSM), France (EDI, LAU), Germany (CR, ZSM), Greece* (ZSM), Romania (Constantineanu & Mustata, 1976), Switzerland* (LAU).

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Astiphromma (Astiphromma) simplex (Thomson, 1886)

Figs 42, 56, 87, 102

Mesochorus (*Astiphrommus*) *simplex* Thomson, 1886: 334, ♀♂.

Lectotype ♀: Yd (LUND), locus typicus Sweden: Yddinge, designated by Fitton, 1982: 54, studied.

Taxonomical remark. This taxon represents one of the smallest known European *Astiphromma* species and seems to be very rare. The ♂ of *A. simplex* Thomson was misidentified by Schwenke (1999). His description and determined material runs to *A. splenium* var. *plagiatum* (Thomson).

Description of ♀

Body length 4.5–5.5 mm. Flagellum with 29–30 flagellomeres, FEI 0.8, preapical segments 1.7 × as long as wide. Apical flagellomere pointed. Mandibular teeth of the same size. Lateral margins of face parallel or divergent ventrally. Temples moderately narrowed behind eyes, TEI 0.8–0.9. Face with dense punctation. Frons with granulation laterally, temple with fine granulation, but shining, without punctures. OOD 1.9. MI 0.5. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum smooth. Scutellum not carinate. Propodeum with area basalis and superomedia confluent, with almost parallel sides apically, costula lacking. Area petiolaris small, wider than long and slightly narrower than the petiolar base. Femur III 4.6–4.8 × as long as wide. Inner spur of tibia III 0.4 × as long as metatarsus III. Claw III with small basal teeth.

Nervulus slightly postfurcal (0.1–0.2 its length). Pterostigma 3.7 times as long as wide.

First tergite 2.8 × as long as wide, postpetiole smooth, with median rim and some fine striae apically, about 1.35 × as long as wide apically. Thyridium of second tergite roundish. Ovipositor sheath about 6.1–7 × as long as wide and 0.85 × as long as metatarsus III, slightly narrowed in the apical third (Fig. 87).

Colour: Black. Cream-yellowish are mandibles except teeth, palps, face, clypeus, frontal orbits above antennal scrobes, gena and temples in the ventral 0.4 (Fig. 42), scapus below, propleurum, anterior margin and hind edge of pronotum, tegula, subtegular ridge, mesosternum and lower part of mesopleurum. Mesopleurum yellowish-red centrally and blackish in the dorsal fifth. Legs yellowish. Hind leg more reddish-yellow, dorsal side of coxa III with brownish spot apically. Tibia III narrowly darkened basally. Tarsus III brownish. Postpetiole with a small triangular yellow spot apically, tergite 2 with yellow hind margin (0.2 of length), tergites 3–5 yellow, with brownish halfmoon-sized spots laterally, apical tergites with yellowish apical bands. Epipleura and sternites yellowish. Pterostigma pale brownish. Ovipositor sheath yellowish-red.

Variety: One specimen from Austria (LINZ) with ovipositor sheath 8.4 × longer than wide.

Description of ♂

Body length 6 mm. Flagellum with 30 flagellomeres, FEI 0.7, preapical segments 2 × as long as wide. Apical flagellomere pointed. Mandibular teeth of the same size. Apical margin of clypeus almost straight, not rounded. Lateral margins of face divergent ventrally (Fig. 56). Temples moderately narrowed behind eyes, TEI 0.8–1.0. Face with dense punctation and granulation. Frons with lateral granulation and superfical punctures. Temple finely granulate, but shining, without punctures. OOD 1.2. MI 0.3. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum smooth. Scutellum not carinate. Propodeum with area basalis and superomedia confluent, with almost parallel sides, costula lacking. Area petiolaris small, heart-shaped, wider than long and slightly narrower than the petiolar base. Femur III about 4.8 × as long as wide, inner spur of tibia III 0.4 × as long as metatarsus III, metatarsus III 0.5 × as long as tibia III. Claw III without distinct teeth.

Nervulus almost interstitial. Pterostigma 3.5 times as long as wide (anterior margin somewhat rolled ventrally). Second recurrent vein joining areolet in its middle.

First tergite 2.3 × as long as wide, postpetiole smooth, with median rim and some fine striae apically, about 1.5 × as long as wide apically. Second tergite about as long as wide, its thyridium oblique. Clasper with slightly thickened apex, about 0.9 × as long as second tarsomere III (Fig. 102).

Colour: Black. Cream-yellowish are mandibles except teeth, palps, face, clypeus, frontal orbits above antennal scrobes, gena and temples in the ventral 0.3, propleurum, anterior margin and hind edge of pronotum, tegula, subtegular ridge, mesosternum and lower part of mesopleurum. Mesopleurum yellowish-red centrally and blackish in the dorsal fifth. Legs yellowish. Hind leg more reddish-yellow, femur III slightly brownish dorsally. Tibia III not distinctly darkened apically. Tergite 2 with yellowish triangular apical mark, tergite 3 with yellowish sandclock-shaped median spot, tergite 4 with yellowish basal stripe. Pterostigma pale brownish.

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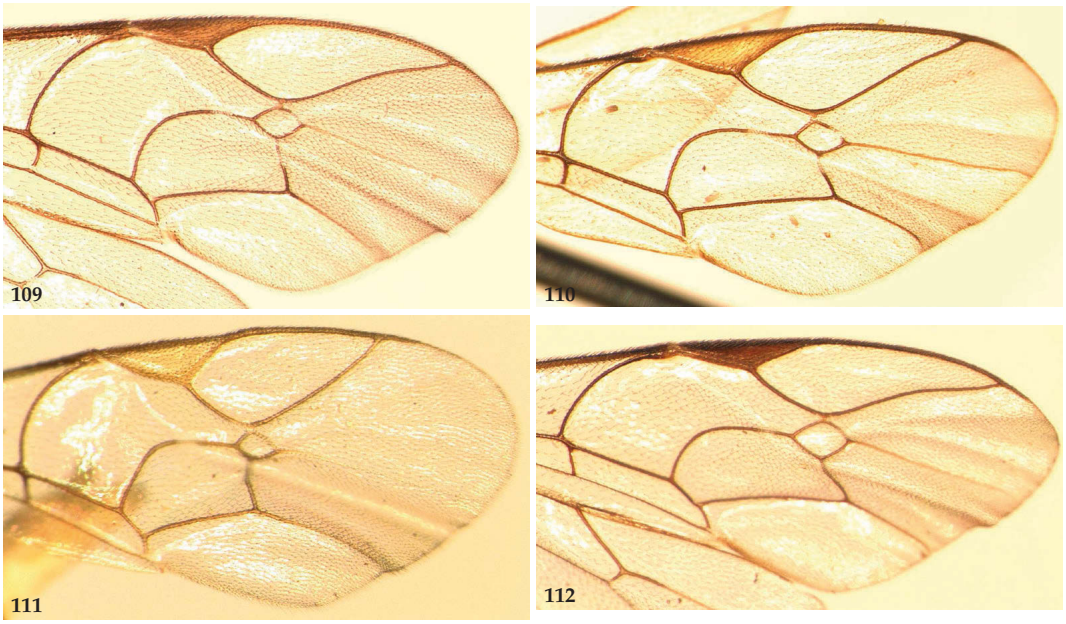
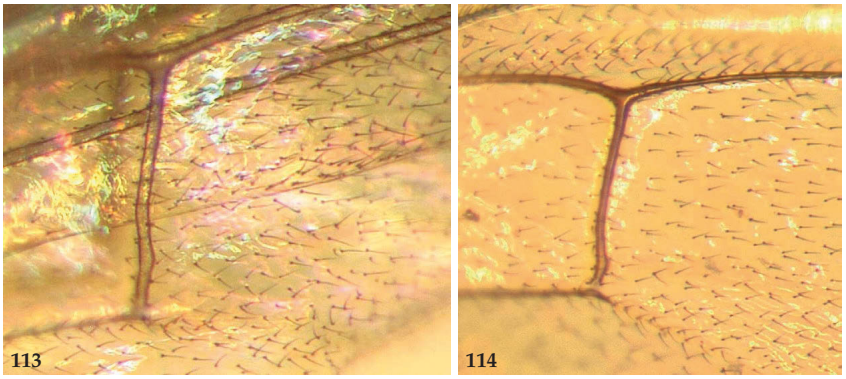


Figs 109–112. Front wings of ♀♀: **109.** *A. aggressor* (Fabricius); **110.** *A. buccatum* (Thomson); **111.** *A. nigriceps nigriceps* (Brischke); **112.** *A. varipes* (Holmgren).



Figs 113–114. Nervellus of hind wing of ♀♀: **113.** *A. longiceps* (Strobl); **114.** *A. tenuicorne* (Thomson).

Hosts. Unknown. The hosts mentioned by Schwenke (1999) might belong to *A. splenium* var. *plagiatum* (Thomson) (see taxonomical remark).

Material. 4♀♀, 2♂♂.

Distribution. Austria (NHM), Finland (CJ), Sweden (LUND, STOCK).

Astiphromma (Astiphromma) splenium (Curtis, 1833)

Figs 21, 43, 57, 88, 94

Mesochorus splenium Curtis, 1833: 424, ♂.

Mesochorus sericans Curtis, 1833: plate 464, ♀, synonymized with *Astiphromma splenium* (Curtis) by Carlson (1979: 705), re-established as a different taxon by Horstmann (2006: 1451–1452), here the synonymy of Carlson is confirmed.

Lectotype ♀: M (DUBLIN), designated by Fitton (1976: 323). Type not studied.

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Figs 115–118. Metasoma from dorsal: **115.** *A. dispersum* Schwenke ♀; **116.** *A. nigriceps asiaticus* ssp. nov. ♀; **117.** *A. nigriceps nigriceps* (Brischke) ♂; **118.** *A. uliginosum* Schwenke ♀.

Figs 119–120. Metasoma of ♀♀: **119.** *A. flavoventrale* spec. nov.; **120.** *A. uliginosum* Schwenke (Holotype of *A. trimaculosum*).

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Mesochorus strenuus Holmgren, 1860: 199, ♀♂, synonymized by Muesebeck (1977: 705).
Lectotype ♀: Bl., Bhn (STOCK), studied.

Mesochorus (*Astiphrommus*) *plagiatus* Thomson, 1886: 332, ♂.
Lectotype ♂: Hbg (LUND), locus typicus: Sweden, England, studied and herewith designated.

Taxonomical remark. This taxon is very common in Europe and seems to be widely variable in size and colour pattern which had given space for the description of several different species in the past. *Mesochorus sericans* Curtis, 1833 was synonymized with *A. splenium* (Curtis) by Carlson (1979: 705), but re-established as a different taxon by Horstmann (2006), mainly by different colour patterns of the metasoma.

I have seen large series of *A. splenium* (Curtis) from Scotland and Byelorussia where most ♀♀ were typical *A. splenium* whereas some of them showed the colour pattern of *A. sericeus*. In the material from Edinburgh, both forms have been reared from *Scirtetes robustus* (Woldstedt, 1877) (Ichneumonidae) via *Orthosia gracilis* (Denis & Schiffermüller, 1776) (Noctuidae) collected from the same place. Therefore, I confirm the synonymizing of both taxa by Carlson (1979).

Astiphromma plagiatum Thomson was synonymized with *Astiphromma strenuum* Holmgren (= *splenium* Curtis) by Schwenke 1999: 20. The lectotype which I have studied is very small, but its structure and coloration is typical for *A. splenium*. The smaller specimens of *A. splenium* that have been determined as *A. plagiatum* were usually reared from lepidopteran hosts with Microgasterinae as primary parasitoids, whereas the larger and typical *A. splenium* specimens have been reared from Lepidoptera with *Meteorus* (Braconidae) and several Ichneumonidae as primary parasitoids. I suggest that the size of the *A. splenium* imago is mainly influenced by some (nutritional?) factors related to the primary parasitoid in the host.

Description of ♀

Size and colour very variable. Body length 5–9.5 mm. Flagellum with 31–39 flagellomeres, FEI 0.65–0.70, preapical flagellomeres 1.5–2 × as long as wide, apical flagellomere pointed (rarely blunt). Lateral margins of face parallel or slightly divergent or convergent ventrally, its minimal width 0.85–0.9 × eye length (Fig. 43). Mandibular teeth of equal size. Frons and vertex with fine granulation and very scattered punctation laterally, Temples with punctures, strongly narrowed behind eyes, TEI 0.5–0.55. OOD 1.1–1.5. MI 0.5–0.6. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower part of mesopleurum with scattered to moderately dense puncture. Scutellum not carinate. Propodeum with almost complete carination. Area superomedia confluent with area basalis, about 2.5 × as long as wide, lateral carinae narrowed apically, often more or less faint. Area petiolaris about as long as wide, wider than the petiolar base, 0.3–0.35 × as long as propodeum. Femur III 4.3–4.6 × as long as wide. Inner spur of tibia III 0.45–0.5 × as long as metatarsus III, metatarsus III 0.55–0.6 × as long as tibia III and about 10.5 × as long as wide. Claw III with long strong teeth.

Nervulus postfurcal of 0.4–0.6 of its length. Nervellus intercepted in the lower 0.2–0.25. Pterostigma 3.8–3.9 × as long as wide, RI 1.1–1.2, radius behind areolet straight. second recurrent vein joining areolet in its middle.

First tergite 2.3–2.4 × and postpetiole 1.15–1.3 × as long as wide, smooth. Second tergite as long as wide. its thyridium large, roundish. Ovipositor sheath 6.2–6.5 × as long as wide, about 0.9–1.0 × as long as metatarsus III, narrowed in the apical 0.4 (Fig. 88).

Colour: black. Ventral margins of face and clypeus, and malar space completely yellowish-red (Fig. 43). Flagellum infuscate. Yellow are hind edge of pronotum, subtegular ridge, tegula, front and middle coxae and trochanters. Scutellum with a diffuse reddish mark. Legs reddish-yellow, femur III reddish, apical half more or less brownish (Fig. 21), tibia III yellowish, at narrow base and apical 0.2–0.3 infuscate. Tarsus III reddish-brown. Pterostigma brown.

Colour of var. *sericans*: black. Ventral margins of clypeus and face reddish, malar space more yellowish. Flagellum reddish. Tegula, subtegular ridge and hind edge of pronotum yellowish. All coxae, trochanters, and trochantelli I–II cream-yellow, legs otherwise reddish-yellow. Femur III with weak apical infuscation, apical 0.25 of tibia III infuscate, tarsus III reddish. Tergite 1 black, tergite 2 with large median triangular spot at apex, tergites 3–4 yellowish medially, brown laterally, following tergites brown basally and yellowish apically (vespoid) or completely brownish. Sternites 2–3 yellow, following sternites reddish-yellow. Pterostigma pale brown. Ovipositor sheath black, with pale tip.

Description of ♂

Body length 5–8 mm. Flagellum with 27–37 segments, FEI 0.67, preapical flagellomeres 2 × as long as wide. Mandibular teeth of equal size. Lateral margins of face strongly convergent ventrally (Fig. 57), face narrow, minimal width about 0.6–0.75 × as length of compound eye. Temples strongly narrowed behind eyes, TEI 0.55. Face with dense punctation, matt. Frons and vertex granulate, temple with superficial

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punctures. OOD 1.5. MI 0.25. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower half of mesopleurum smooth. Scutellum not carinate. Propodeum with complete carination. Sides of area superomedia narrowed apically, costula distinct. Area petiolaris small, wider than long. Femur III 4.7–4.9 × as long as wide, inner spur of tibia III 0.5 × as long as metatarsus III, metatarsus III 0.50–0.55 × as long as tibia III. Claw III with teeth.

Nervulus slightly postfurcal (0.1–0.2 its length), nervellus of hind wing intercepted in the apical 0.2, but discoidella indistinct. Second recurrent vein joining areolet basal of its middle. Pterostigma 3.8–3.9 × as long as wide, RI 1.2, radius behind areolet straight.

First tergite 2.8 × and postpetiole 1.3–1.4 × as long as wide apically. Second tergite 1.0–1.1 × as long as wide, its thyridium large, roundish or slightly transverse. Clasper about 1.1–1.4 × as long as the second tarsomere III (Fig. 94).

Colour: Black. Cream-yellowish are mandibles except teeth, palps, face, clypeus, frontal orbit above antennal scrobe, gena and temple in the ventral 0.4, coxa I and trochanteres I–III. Propleurum, pronotum, mesosternum and mesopleurum reddish, often with yellowish stripes or spots. Mesopleurum often infuscate below subtegular ridge. Metapleurum and scutellum sometimes reddish. Legs reddish-yellow. Tibia III yellow infuscate in the apical 0.2. Tarsus III more or less brownish. Tergite 2 with large yellow triangular spot in the apical half, tergite 3 with sandclock-shaped yellowish stripe, tergite 4 with yellowish spot basally. Pterostigma pale brownish.

Hosts. *Eupithecia actaeata* (Wallerdorf, 1869) (Lep., Geometridae) via *Dusona angustifrons* Förster, 1868 (Hym., Ichneumonidae) (ZSM); *Panolis flammea* (Denis & Schiffermüller, 1775) (Lep., Noctuidae) via ?*Scirtetes robustus* (Woldstedt, 1877) (Hym., Ichneumonidae) (ZSM); *Campoletis rapax* (Gravenhorst, 1829) (Hym., Ichneumonidae) (EDI, ZSM); *Panolis flammea* (Denis & Schiffermüller, 1775) (Lep., Noctuidae) via *Meteorus versicolor* (Wesmael, 1838) (Hym., Braconidae) (NHM); ?*Aerhalnia punctulata* via *Dusona* sp. (Hy,., Ichneumonidae) (EDI); *Zygaena filipendulae* or *laricerae* (Lep., Zygaenidae) via *Charops cantator* (DeGeer, 1778) (Hym., Ichneumonidae) (EDI); *Orthosia incerta* (Hufnagel, 1766) (Lep., Noctuidae) (ZSM); *Orthosia cerasi* (Fabricius, 1775) (Lep., Noctuidae) (NHM); *Thera variata* (Denis & Schiffermüller, 1775) (Lep., Geometridae) via *Protapanteles pinicola* (Lyle, 1917) (Hym., Braconidae) (NHM); *Eupithecia* sp. (Lep., Geometridae) via Campoplegine sp. (Hym., Ichneumonidae) (NHM); *Taenocampa stabilis* (?) via *Aleiodes circumcriptus* (Nees, 1834) (Hym., Braconidae) (NHM); *Meteorus pulchricornis* (Wesmael, 1835) (Hym., Braconidae) (NHM); *Thera variata* Denis & Schiffermüller, 1775 (Lep., Geometridae) via *Meteorus melanostictus* (Capron, 1887) (Hym., Braconidae) (NHM); *Macaria liturata* (Clerck, 1759) (Lep., Geometridae) via *Protapanteles fulvipes* (Haliday, 1834) (Hym., Braconidae) (ZSM); *Erannis defoliaria* (Clerck, 1759) (Lep., Geometridae) via *Microgaster* sp. (Hym., Braconidae); *Orthosia* sp. (Lep., Noctuidae) via *Microgaster* sp. (Hym., Braconidae) (ZSM); *Odontopera bidentata* (Clerck, 1759) (Lep., Geometridae) via *Apanteles* s.lat. sp. (Hym., Braconidae) (Thomson, 1886); *Amphipyra pyramidea* (Linnaeus, 1758) (Lep., Noctuidae) via *Apanteles* s.lat. sp. (Hym., Braconidae) (ZSM).

Material. 252 ♀♀, 133 ♂♂.

Distribution. Austria (LINZ, NHM), Bulgaria (LINZ, ZSM), Byelorussia (ZSM), Czechia (LINZ), Finland (CJ), France (LINZ, ZSM), Germany (ZSM, CR), Great Britain (EDI, NHM), Greece* (LINZ, ZSM), Hungary (ZSM), Ireland (NHM), Italy* (CG, NHM, WARS, ZSM), Netherlands (CZ, NHM), Montenegro (NHM), Norway (CR), Poland (ZSM), European Russia (CR, LINZ)), Serbia* (NHM), Siberia (CR), Slovakia (LINZ), Slovenia* (LINZ), Sweden (EDI, CR, NHM, STOCK), Switzerland (CZ), Ukraine (CR), Turkey (ZSM).

Astiphromma (Astiphromma) striatum (Brischke, 1880)

Figs 16, 37, 50, 51, 81

Mesochorus (*Astiphromma*) *striatus* Brischke, 1880: 192, types lost.

Mesochorus (*Astiphrommus*) *mandibularis* Thomson, 1886: 330, ♀♂, syn. nov.

Lectotype ♀: Yd (LUND), locus typicus Sweden, Yddinge, designated by Townes et al. 1965: 340, studied.

Taxonomical remark. Brischke (1880) described both ♀ and ♂ of *A. striatum*, but his type material is lost. However, his detailed description of the colour patterns of both sexes corresponds exactly with the one found in *A. mandibularis*. Although Brischke did not mention the differently sized mandibular teeth, I have no doubt that both taxa are synonyms.

Description of ♀

Body length 5–8 mm. Flagellum with 38–41 flagellomeres, FEI 0.6–0.65, preapical segments about 2 × as long as wide, apical flagellomere pointed. Lower mandibular tooth much larger than the upper one. Temple narrowed behind eye, with scattered puncture, TEI 0.7–0.75 (Fig. 16). Minimal width of face 1.0 × eye length, lateral margins parallel or slightly divergent ventrally. Frons and vertex finely granu-

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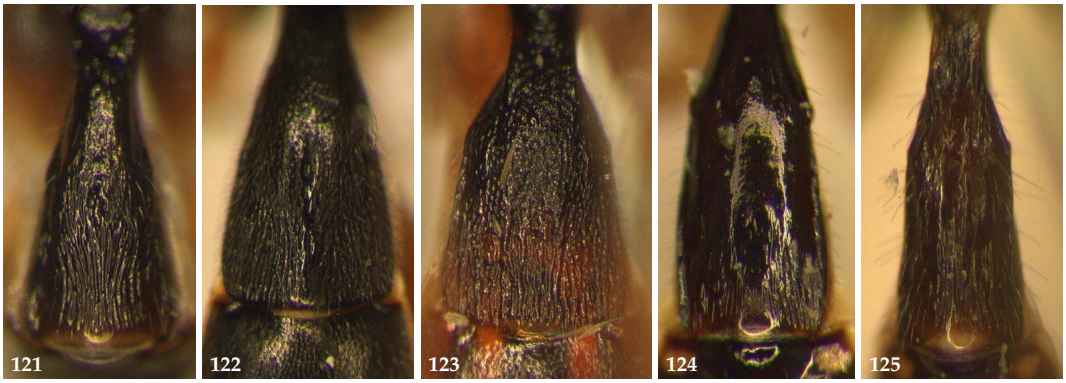

Figs 121–125. Postpetiolus of ♀♀: **121.** *A. longiceps* (Strobl); **122.** *A. pictum* (Brischke); **123.** *A. rimosum* Schwenke; **124.** *A. tenuicorne* (Thomson); **125.** *A. leucogrammum* (Holmgren).

late, with very scattered punctation, OOD 1.1–1.4. MI 0.4. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower part of mesopleurum with scattered to dense puncture. Scutellum sometimes with lateral carina in the basal 0.5. Propodeum with complete carination. Area superomedia about 2× as long as wide, strongly narrowed apically. Area petiolaris wider than long, about as wide as petiolar base, 0.35× as long as propodeum. Femur III 3,8–4,2× as long as wide. Trochantellus III ventrally flattened, the flat area with more or less sharp edges laterally and medially (Fig. 51). Metatarsus III with apical rings of small spines, about 0.42× as long as the tibia III (Fig. 50). Inner spur of tibia III 0.55–0.6× as long as metatarsus III. Claw III with short basal teeth.

Nervulus strongly postfurcal (0.3–0.6 its length), nervellus of hind wing intercepted in the apical 0.2. Second recurrent vein joining areolet in or basal to its middle. Pterostigma about 3.7× as long as wide, RI about 1.2, radius behind areolet straight.

First tergite 3.0–3.2× and postpetiole 1.6–1.8× as long as wide. Second tergite usually as long as wide (rarely 1.4× as long as wide – artificially?), its thyridium oval or roundish, slightly as long as wide. Ovipositor sheath narrow, 8.1–8.9× as long as wide, about 1.1× as long as metatarsus III, narrowed in the apical third (Fig. 81).

Colour: Black. Flagellum reddish or yellowish, dorsally infuscate. Clypeus, face, malar space, lower 0.2 of temple and lower half of frontal orbit yellow, sometimes face with brown median stripe (Fig. 37). Tegula, hind edge of pronotum and subtegular ridge yellow. Mesosoma often with reddish and/or yellowish suffusion, especially on mesoscutum, mesosternum, and scutellum. Coxae I–II and all trochanters and trochantelli yellowish. Legs otherwise reddish-yellow, coxa III sometimes with posterodorsal brownish spot. Tibia III infuscate in the apical 0.1. Tergite 2 at apex with large reddish-yellow triangular median spot, sometimes with a complete median stripe, tergite 3 with a sandclock-shaped reddish-yellow stripe, following tergites usually more or less vespoid, sternites yellowish with brown sides. Pterostigma yellowish, with darker margins. Ovipositor sheath black, with reddish tip.

Description of ♂

Body length 7–9 mm. Flagellum with 37–40 flagellomeres. Lateral margins of face slightly convergent ventrally Vertex and temple with scattered punctures. TEI 0.9. OOD about 1.0. Lower part of mesopleurum with scattered punctures. Femur III 3.8–4.2× as long as wide. Metatarsus III 0.4× as long as tibia III. Clasper about 1.0–1.2× as long as the second tarsomere III. Trochantellus III ventrally flattened with more or less sharp edges laterally and medially. Tibia III with numerous spines on outer side. Claw III with long basal teeth.

Colour: Black. Coxa III sometimes with a blackish spot dorsal-apical. Femur III with narrow infuscation apically. Sometimes apical tarsomere brownish. Sternites 5–7 blackish. Otherwise coloured as the ♀.

Hosts. *Mamestra brassicae* (Linnaeus, 1758) and *Lacanobia oleacea* (Linnaeus, 1758) (Lep., Noctuidae) (Constantineanu & Mustata, 1981), Geometridae larva (Lep.) (Schwenke 1999).

Material. 103 ♀♀, 57 ♂♂.

Distribution. Austria (CS, CZ, LINZ, NHM), Bulgaria (ZSM), Byelorussia* (ZSM), Czechia (LINZ), Finland (CJ), France* (ZSM), Germany (CR, LAU, NHM, SCHNEE, ZSM), Poland (WARS), Russia (LINZ), Sweden (NHM, STOCK, ZSM), Switzerland* (LAU), Ukraine (CR).

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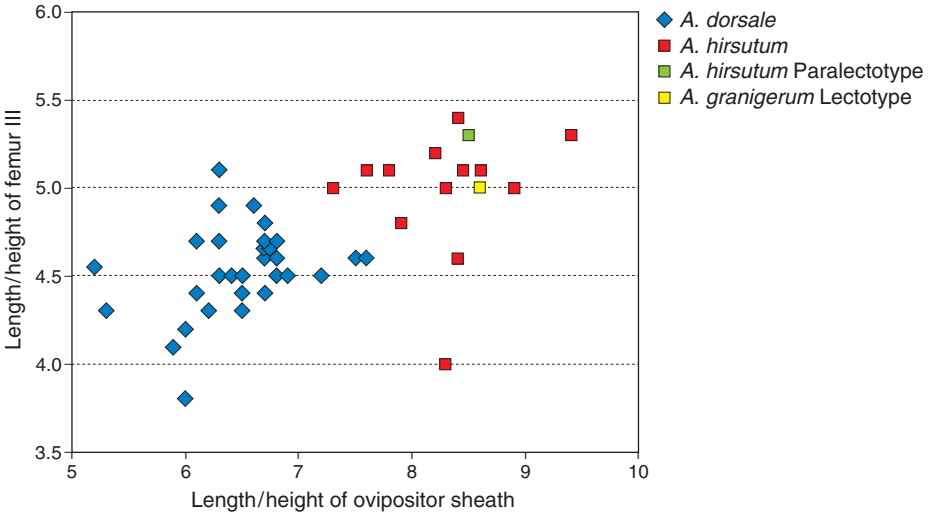

Fig. 126. Relation of the size of femur III and ovipositor sheath in *A. dorsale* (Holmgren) and *A. hirsutum* (Bridgman).

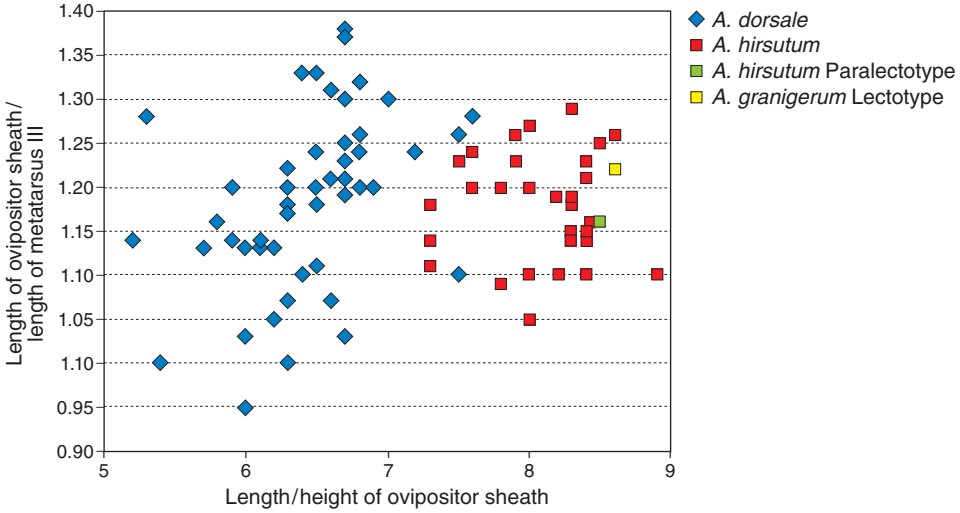

Fig. 127. Relation of the size of ovipositor sheath and the length of metatarsus III in *A. dorsale* (Holmgren) and *A. hirsutum* (Bridgman).

Astiphromma (Astiphromma) tenuicorne (Thomson, 1886)

Figs 19, 44, 89

Mesochorus (*Astiphrommus*) *tenuicornis* Thomson, 1886: 332, ♀♂.

Lectotype ♀: Pål (LUND), locus typicus Sweden: Pålsö, designated by Fitton 1982: 54, studied.

Description of ♀

Body length 5–7.5 mm. Flagellum very slender, with 36–39 flagellomeres, FEI 0.8–0.9, preapical flagellomeres more than 2× as long as wide. Lower mandibular tooth often slightly larger than the upper one. Temples strongly narrowed behind eyes, with very superficial punctures, TEI 0.8–0.9 (Fig. 19). Face punctate, matt, its lateral margins divergent ventrally, minimal width 0.9–1.0× eye length (Fig. 44). Frons and vertex often granulate,

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with fine superficial punctation. OOD about 1.2. MI 0.6. Genal carina joining the hypostomal one far from mandibular base (by malar length).

Lower part of mesopleurum almost smooth or with fine scattered punctation. Scutellum not carinate. Propodeum usually with complete carination, but areae basalis and supermedia often confluent. Costula weak. Area superomedia very slender, 3.3–3.7 × as long as wide, parallel or slightly convergent apically. Area petiolaris small, about as long as wide, 0.2–0.25 × as long as propodeum. Femur III 5.1–5.6 × as long as wide. Inner spur of tibia III about 0.45 × as long as metatarsus III. Metatarsus III about 10 × as long as wide and 0.50–0.55 × as long as tibia III. Claw III with small basal teeth.

Nervulus more or less interstitial. Nervellus intercepted in the lower 0.2, but discoidella indistinct. Pterostigma about 3.5–4.0 times as long as wide, RI about 1.2. Second recurrent vein joining areolet in its middle.

First tergite 2.6 × and postpetiole 1.3–1.7 × as long as wide, the latter with fine longitudinal striation in the apical third. Second tergite 0.9 × as long as wide, its thyridium large, transverse. Ovipositor sheath 8.2–8.7 × as long as wide, 0.85–0.9 × as long as metatarsus III, moderately narrowed and bent upwards apically (Fig. 89).

Colour: Black. Face yellowish (Fig. 44). Cream-yellow are lower 0.4 of temple, mandible except teeth, all coxae and trochanters, trochantelli I–II, mesosternum, propleurum and anterior border of pronotum, often also hind edge of pronotum, tegula and subtegular ridge. Mesopleurum black dorsally, reddish ventrally with a sharp border of both colours (as Fig. 108), mesosternum more or less yellowish and/or mesopleurum ventrally with yellow colour. Metapleurum and scutellum sometimes with dark red suffusion. Legs reddish-yellow, dorsal part of femur III often with diffuse brownish suffusion, tibia III only slightly darkened apically. Tergites 1–2 black, tergite 2 with a triangular yellowish spot at apex, tergites 3–5 yellowish, brownish laterally, the following tergites yellowish or slightly vespoid, epipleura and sternites yellowish, sternites 2–3 often with brown spots laterally. Ovipositor sheath yellowish-brown.

Description of ♂

Body length 6–7 mm. Flagellum with 36 flagellomeres, FEI about 0.7. Face wide, minimal width 0.9 × of eye length, its margins divergent ventrally. MI 0.5. Temples moderately narrowed behind eyes, with very superficial punctures, TEI 0.7–0.8. Face punctate, matt, its lateral margins divergent ventrally. OOD 1.2. Femur III 4.6 × as long as wide. Postpetiole with fine longitudinal striation in the apical half. Claw III long, apex moderately curved, without distinct teeth. Clasper 0.8 × as long as second metatarsus III, slightly clavate apically.

Colour: Black. Flagellum infuscate. Yellowish are lower 0.3 of temples, mandibles except teeth, clypeus and face except a dark longitudinal median stripe above, coxae I–II, all trochanters and trochantelli, propleurum, anterior border of pronotum, hind edge of pronotum, and tegula. Mesopleurum black above, reddish below (usually with sharp border), mesosternum more yellowish. Legs reddish-yellow, coxa III sometimes with a darkened dorsal spot apically. Femur III slightly darkened apically. Tibia III more yellowish, infuscate in the apical 0.2, tarsus III infuscate. Tergites 1–2 black, tergite 2 with a yellowish band or triangular spot at apex, tergites 3–4 with a sandclock-shaped yellowish median stripe, the following more or less blackish, sternites yellowish, with brown spots laterally. Pterostigma brown.

Hosts. *Dolerus genucinctus* Zaddach, 1859 (Hym., Tenthredinidae) (ZSM), *Sioblia sturmii* (Klug, 1817) (Hym., Tenthredinidae) (ZSM), *Monophadnus spinolae* (Klug, 1816) (Hym., Tenthredinidae) (ZSM).

Material. 59 ♀♀, 3 ♂♂.

Distribution. Austria (CS, ZSM), Bulgaria (ZSM), Czechia (LINZ), Finland (CJ), Germany (CR, ZSM), Great Britain (EDI, NHM), Netherlands* (CZ), Norway (CR), Sweden (STOCK, ZSM), Switzerland* (LAU, NHM).

Astiphromma (Astiphromma) tridentatum Schwenke, 1999

Figs 46, 47, 90

Astiphromma tridentatum Schwenke, 1999: 20, ♀.
Holotype ♀: Rila-Kloster/Bulgar. E 232100/N 420900, 9.7.74, R. Hinz (ZSM), studied.

Taxonomical remark. The extent of pale facial coloration seems to be quite variable. There are two specimens – found at the same place and date as the holotype – with the yellowish colour on the clypeus and the lower face beside the clypeus only (Fig. 47, as in *A. alpinum*). However, they are otherwise similar to the holotype of *A. tridentatum*.

Description of ♀

Body length 6 mm. Flagellum with 33–34 flagellomeres, FEI 0.58–0.61, preapical flagellomeres about 1.5 × as long as wide, apical flagellomere more or less blunt. Mandible with strong lamella ventrally and with equally sized teeth. Face punctate and

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granulate, with fine oblique striation beside clypeus, its minimal width 1.0 × eye length. Frons granulate, laterally matt, without punctures. MI 0.6. Temples strongly narrowed behind eyes, with very superficial punctation, TEI 0.6–0.7. OOD 1.5–1.7. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Lower part of mesopleurum almost smooth or with scattered fine punctation. Scutellum not carinate. Propodeum with complete carination. Area superomedia confluent with area basalis and slightly narrowed apically. Costula faint laterally. Area petiolaris wider than long and slightly wider than petiolar base, 0.35 × as long as propodeum. Femur III 3.9–4.2 × as long as wide. Inner spur of tibia III 0.5–0.55 × as long as metatarsus III. Metatarsus III 8.5 × as long as wide and about 0.45 × as long as the tibia III. Claw III with quite short teeth.

Nervulus postfurcal (0.3–0.5 its length). Pterostigma 3.2–3.5 × as long as wide, RI 1.1–1.3, radius behind areolet straight. Second recurrent vein joining areolet in its middle.

First tergite 2.5–3.0 × and postpetiole 1.4–1.6 × as long as wide. Postpetiole smooth. Second tergite 0.9–1.0 × as long as wide, its thyridium roundish. Ovipositor sheath 7.5–9 × as long as wide, about 0.9–1.2 × as long as metatarsus III, in the apical third slightly bent upwards (Fig. 90).

Colour: Black. Face with three ivory more or less long stripes (Figs 46, 47). Flagellum brownish, paler in the basal third, sometimes scapus and pedicellus yellowish below. Scutellum dark reddish. Front and middle legs yellowish-red, hind leg reddish-brown, tibia III infuscate in the apical 0.15–0.25. Tergite 2 with a triangular yellowish spot in the apical third or with a yellowish band in the apical 0.2, tergite 3 with a sandclock-sized yellowish median stripe, following tergites reddish-yellow, sometimes with lateral darkening and paler hind margins (vespoid). Episterna and sternites yellow, sternites 2–3 with brown lateral spots. Ovipositor sheath black, with reddish tip.

♂ unknown.

Hosts. Unknown.

Material. 5 ♀♀.

Distribution. Austria* (CS), Bulgaria (ZSM), Germany* (ZSM), Sweden (NHM)

Astiphromma (Astiphromma) uliginosum Schwenke, 1999

Figs 45, 91, 95, 118, 120

Astiphromma uliginosum Schwenke, 1999: 23, ♀.
Holotype ♀: ex Kokon an Weiden Gröbenz. [back side] Schw. Eschenried 7.90 (ZSM), locus typicus Gröbenzell/D, studied.

Astiphromma trimaculosum Schwenke, 2004: 83, syn. nov.
Holotype ♀: Horsell Common, Surrey 6/8–14/8/00 Malaise trap, J Pontin (Horniman Museum), studied.

Taxonomical remark. Schwenke (2004) compared *A. trimaculosum* with *A. uliginosum* in his description, but his proposed differences seem to be individual variations. Studying both types and additional European material convinces me to synonymize the species.

Description of ♀

Body length 4.0–7.0 mm. Flagellum with 30–35 flagellomeres, slender, FEI 0.6–0.75, preapical flagellomeres about 1.5–2 × as long as wide, apical flagellomere pointed. Mandibular teeth of equal size. Face punctate and granulate, but shining, lateral margins parallel or slightly convergent or divergent ventrally, minimal width 0.95 × eye length (Fig. 45). Frons and vertex with granulation and very scattered punctures. Temples strongly narrowed behind eyes, with superficial puncture, TEI 0.5–0.6. OOD 1.3–1.7. MI 0.6–0.7. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated.

Mesopleurum with very scattered fine hair-punctures. Scutellum not carinate. Propodeum with complete carination, but carinae of area basalis sometimes faint. Area superomedia about 2.2 × as long as wide, convergent apically. Area petiolaris large, wider than long, 0.3 × as long as propodeum. Femur III 4.5–4.9 × as long as wide. Inner spur of tibia III 0.45–0.5 × as long as metatarsus III. Metatarsus III 9–10 × as long as wide and 0.52–0.55 × as long as tibia III. Claw III with about 4–5 strong teeth, basal teeth larger than the apical ones.

Nervulus strongly postfurcal (0.4–0.7 its length). Nervellus of hind wing slightly intercepted in the apical 0.2, discoidella indistinct. Pterostigma 3.9–4 × as long as wide, RI 1.1–1.2, radius behind areolet straight or slightly sinusoid. Second recurrent vein joining areolet in its middle.

First tergite 2.4–2.6 × and postpetiole 1.1–1.2 × as long as wide, smooth. Second tergite 0.8–1.0 × as long as wide, its thyridium large, transverse or roundish. Ovipositor sheath 7.1–8.4 × as long as wide and 0.85–1.0 × as long as metatarsus III, narrowed in the apical 0.4–0.5 (Fig. 91).

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Colour: Black. Narrow ventral margins of clypeus and face yellow. Clypeus and face otherwise black. Flagellum reddish-brown, infuscate apically. Cream-yellowish are malar space, hind edge of pronotum, tegula, subtegular ridge, coxae I–II, and all trochanters. Sometimes pronotum, mesopleurum ventrally and scutellum with diffuse reddish-brown suffusion. Legs except coxae and trochanters reddish-yellow, femur III diffusely darkened at apex, tibia III infuscate on apical 0.15–0.2. Pterostigma brown or yellowish-brown. Tergite 1 black, sometimes with a small yellowish median spot at apex, tergite 2 black, with large triangular reddish spot at apex, tergites 3–(4) reddish-yellow, with dark brown half-moon sized sides, following tergites brownish, with yellowish apical margins (vespoid) (Figs 118, 120). Sternites mainly cream-yellow, with brownish sides. Ovipositor sheath brown or blackish, with pale tip.

Description of ♂ (new male)

Body length 5 mm. Mandibular teeth of equal size. Lateral margins of face divergent ventrally. Frons laterally granulate, medially smooth. Temples strongly narrowed behind eyes, TEI 0.6. OOD 1.4. Genal carina joining the hypostomal one far from mandibular base, hypostomal carina not elevated. Mesopleurum with very scattered, fine hair-punctures. Scutellum not carinate. Propodeum with complete carination. Area superomedia long, slightly narrowed apically. Area petiolaris wider than long. Femur III 4.1 × as long as wide. Claw III with basal teeth. Nervulus postfurcal (0.3 its length). Nervellus of hind wing not clearly intercepted, discoidella indistinct. Pterostigma 3.4 × as long as wide, RI 1.05, radius behind areolet straight. second recurrent vein joining areolet in the middle. First tergite 2,4 × and postpetiole 1.4 × as long as wide, smooth. Second tergite 0.9 × as long as wide, thyridium large, transverse. Clasper about 1.1 × as long as second tarsomere III (Fig. 95).

Colour: Black. Cream-yellowish are mandibles except teeth, palps, clypeus, face, gena, temple in the lower 0.3, scapus and pedicellus below, hind edge of pronotum, tegula, subtegular ridge, tibia III infuscate on apical 0.2. Tarsus III brownish. Pterostigma brown. Tergite 1–2 black, tergite 2 with large triangular yellowish spot apically, tergite 3 yellowish, with brownish sides, tergites 4–7 brownish, with yellowish apical margins (vespoid). Sternites 1–3 yellowish, with brown sides, following sternites brown, with yellow apical margins.

Host. *Pseudoips prasinana* (Linnaeus 1758) (Lep., Noctuidae) (NHM), *Epione* sp. (Lep., Geometridae) (Schwenke 1999).

Material. 15 ♀♀, 1 ♂.

Distribution. Austria* (LINZ), Bulgaria* (ZSM), Germany (ZSM), Great Britain* (NHM), Greece* (ZSM), Norway* (CR).

Astiphromma (Astiphromma) varipes (Holmgren, 1860)

Figs 20, 48, 92, 112

Mesochorus varipes Holmgren, 1860: 120, ♀.
Holotype ♀: Sm; Bhn (STOCK), studied.

Description of ♀

Body length 7–10 mm (rarely smaller, one specimen 5.5 mm). Flagellum with 36–49 flagellomeres, FEI 0.7–0.72, preapical flagellomeres 1.5–2 × as long as wide, apical flagellomere pointed. Mandibular teeth of equal size. Face punctate, shining, lateral margins parallel or divergent ventrally, minimal width 0.9 × eye length (Fig. 48). Temples strongly narrowed behind eyes, with superficial punctation, TEI 0.55 (Fig. 20). Frons smooth centrally, with fine granulation laterally, without clear punctures. OOD 0.8–1.0. MI 0.7. Genal carina joining the hypostomal one far from mandibular base (by malar length), hypostomal carina not elevated.

Lower part of mesopleurum with moderately dense punctures. Scutellum not carinate. Propodeum with complete carination. Area superomedia moderately narrowed apically, about 2 × as long as wide, usually confluent with area basalis. Area petiolaris large, about as long as wide, wider than petiolar base, 0.35 × as long as propodeum. Femur III 4.4–4.8 × as long as wide. Inner spur of tibia III about 0.53 × as long as metatarsus III. Metatarsus III 9 × as long as wide and 0.55–0.6 × as long as tibia III. Claws III with medium sized teeth.

Nervulus strongly postfurcal (0.3–0.5 its length). Pterostigma about 4.3 × as long as wide. Radial vein behind areolet distinctly sinusoid, RI 1.3 (Fig. 112).

First tergite 2.3 ×, and postpetiole 1.3–1.4 × as long as wide, smooth. Second tergite 0.9–0.95 × as long as wide, its thyridium roundish. Ovipositor sheath 5.3 × as long as wide, 0.8–0.9 × as long as metatarsus III, in the apical third slightly narrowed (Fig. 92).

Colour: Black. Gena, mandible except teeth, palps, coxa I, trochanter I, tegula, hind edge of pronotum and spot on subtegular ridge cream-yellow. Reddish-yellow are apical margin of clypeus and legs. Coxa III more reddish, femur III brown to black, tibia III yellowish, basally (0.15) and apically (0.3) infuscate. Tarsus III infuscate. Pterostigma dark brown. Sternites brown laterally, medially yellow. Ovipositor sheath black, with pale tip.

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Description of ♂

Body length 6–9 mm. Flagellum with 40–44 flagellomeres. MI 0.75. TEI 0.5–0.6. Genal carina joining the hypostomal one far from mandibular base. Radial vein behind areolet sinusoid. Femur III about 4.3 × as long as wide. Clasper about 1.2–1.3 × as long as the second segment of tarsus III, not narrowed apically.

Colour: Black. Mesosternum and mesopleurum with diffuse yellowish or reddish marks. Cream-yellow are face, clypeus, gena, mandible except teeth, palps, coxae I–II, all trochanters, tegula, hind edge of pronotum and spot on subtegular ridge. Tergites 2–3 more or less yellowish medially or apically. Tibia III yellowish, with or without a narrow infuscate base, infuscate in the apical 0.2. Tarsus III cream-yellow or infuscate.

Hosts. *Panolis flammea* (Denis & Schiffermüller, 1775) (Lep., Noctuidae) via *Meteorus* sp. (Hym., Braconidae) (NHM); *Bupalus* sp. (Lep., Geometridae) via *Campoplex* sp. (Hym., Ichneumonidae) (Schwenke 1999).

Material. 28 ♀♀, 18 ♂♂.

Distribution. Bulgaria (ZSM), Germany (CR, SCHNEE, ZSM), Great Britain* (EDI, NHM), Norway (CR), Sweden (STOCK), Switzerland* (LAU).

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