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New species and notes on variation in Platygastriinae from Germany (Hymenoptera, Platygastriidae)

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Abstract

Four new species are described: *Metaclisis germanica* nov.sp., *Platygaster hortensis* nov.sp., *P. petasitiphila* nov.sp., and *Trichacis weiperti* nov.sp. The variability of some known species is discussed. The work is illustrated by 10 text-figures.

Zusammenfassung

Vier neue Arten werden beschrieben: *Metaclisis germanica* nov.sp., *Platygaster hortensis* nov.sp., *P. petasitiphila* nov.sp., und *Trichacis weiperti* nov.sp. Die Variabilität einige früher bekannte Arten werden diskutiert. Die Arbeit ist mit 10 Abbildungen versehen.

Introduction

In the autumn of 2017 the curator for entomology at Naturkundemuseum Erfurt, Germany, Matthias Hartmann, kindly offered me a loan of about 600 platygastriids, nearly all from Thuringia, Germany. During the determination process I encountered some problems which are emblematic for work on this group of poorly studied microwasps. Numerous specimens seemed to represent undescribed species, but after weeding out all the doubtful cases I ended up with the four species described as new below. Still, many taxa remain problematic because of the scarcity of available material of many species, with resulting lack of knowledge of variation. This is of course a general problem in descriptive entomology, but with platygastriids this seems accentuated both by lack of material of the less common species and by few useable characters and often wide variation of the species. For example, at first I considered a specimen of *Amblyaspis* to represent a species new to science, but then further specimens appeared in the loan, and they all in fact seem to represent *A. nereus* (WALKER, 1835). The first specimen had pale antennae and lacked the vertical striation on occiput characteristic for *A. nereus* and *A. roboris* (WALKER, 1835), but still with the bare basal foveae of T2 separating *A. nereus* from *A. roboris*. But then other specimens appeared with similar general morphology, but with different strength of striation on occiput, and more or less dark antennae. Even specimens with very few hairs and distinct hairs in basal foveae

(from same collection event), making it very likely that the otherwise similar species *A. nereus* and *A. roboris* are conspecific. But one of the few easily observable characters in *Amblyaspis* then becomes unusable for separation of species! Another case is two specimens of *Leptacis* from same collection event, also in Thuringia, one of them clearly corresponds to VLUG's (1985) redescription of *L. ozines* (WALKER, 1835), with scutellum not longer than propodeum, while the other is a somewhat larger specimen, generally more "strongly" developed and with a finely pointed scutellum reaching middle of T1, giving quite another visual impression, though all differences seem to be just of degrees. Also, a female *Platygaster gracilipes* HUGGERT, 1975 from Thuringia has metasoma about 2.6 times as long as wide, and T6 fully as long as wide, in contrast to the normal as given by the original description, that is metasoma about 1.8 times as long as wide, and T6 distinctly transverse. It is always important to allow for some variation in platygastrids, as shown by as further female specimen from Thuringia of the rare species *Platygaster lilleoensis* BUHL, 2013, (with the interesting collecting data "Orlamünde, Saaleufer, 19.-27.iv.1999, *Salix alba* L., eclector 5 m height, F. BURGER") with slightly more elongate antennae than the holotype and even rather distinct differences from that in the relative length of segments (length:width A1-A10 = 14.0:2.0; 4.0:1.8; 1.8:1.1; 2.0:1.7; 2.0:1.7; 2.0:1.7; 2.3:2.0; 2.9:2.4; 2.8:2.3; 4.2:2.0, compare with BUHL (2013)), of course also allowing for some discrepancies due to measurement uncertainty on asymmetrical segments (which should be measured along the mid axis). A further example of the elusive variation of species of Platygastriinae concerns *Platygaster (Huggertella) tubulosa* BRUES, 1922, an isolated cosmopolitan species, of which a specimen from Thuringia has female apical antennal segment hardly 0.9 as long as A9, and only about 0.8 times as wide as this, that is even more extreme than the variation documented by HUGGERT (1980) for the species (in smaller specimens A10 is distinctly longer than A9 and as wide as this). Relative dimensions of antennal segments are very important for separation of species in Platygastriinae, but even this can clearly vary with size of specimens. In conclusion, with scarce material it is easy to be deceived to erect apparently distinct species, and it is hard to define rules for what is outside the "normal" range of variation of a species, apart from that not just a few, but numerous characters should be distinctly different to justify description of new species. However, even this rule can not be applied indiscriminately: Among the specimens from Thuringia was also a *Synopeas* female present, similar to Swedish *S. ronquisti* BUHL, 2010 but with A2 one-third as long as A1, 1.2 times as long as A3-A4 combined (*S. ronquisti* has A2 relatively shorter, hardly 0.3 as long as A1, and hardly longer than A3-A4 combined), with A9 very slightly more transverse than in types of *S. ronquisti*, LOL 3.5 times as long as OOL (LOL only twice as long as OOL in typical *S. ronquisti*), propodeal carinae dark and about half as long as scutellum (in *S. ronquisti* semitransparent and about 0.8 as long as scutellum), scutellum slightly lower (fig. 1) than in the original material of *S. ronquisti*, metasoma very slightly more flattened and with apical tergite reticulate (smooth in *S. ronquisti*), and basal tufts of pubescence reaching to about 0.3 of combined length of T1-T2 (hardly 0.25 combined length of T1-T2 according to original description of *S. ronquisti*). All these small differences first led me to consider the specimen from Thuringia the holotype of a new species, but then I found a further Swedish specimen which seems to be *S. ronquisti* (hitherto known from only two specimens) but with some of the mentioned character states as in the German specimen, showing the deceptive character instability in these polymorphic platygastrid taxa.



Fig. 1: *Synopeas ronquisti* BUHL, 2010, scutellum of German female in lateral view.

Standard abbreviations used in the descriptions are A1–A10 = antennomeres 1-10, OOL = distance between lateral ocellus and eye, LOL = distance between lateral and anterior ocelli, POL = distance between lateral ocelli, T1-T6 = tergites 1-6, and L:W = length:width.

Descriptions

Metaclisis germanica nov.sp. (figs 2-4)

Material examined: Holotype ♀: Germany, Thüringen, Jena, Hautklinik, 22.v.1986, yellow pan trap in garden, J. Weipert (Naturkundemuseum Erfurt). Paratypes: 4♀♀, 1♂ same data as holotype.

Diagnosis. Female antenna with no segment wider than long, male A10 more than twice as long as A9; female metasoma 1.2 times as long as rest of body, not wider than mesosoma, antero-dorsally with a slight hump, T2 striated to 0.3; female T6 1.5 times as wide as long, shorter than T3-T5 combined; legs brown.

Description. ♀. Body length 1.2-1.4 mm. Black; antennae, mandibles, tegulae and legs including coxae dark brown; trochanters, knees, apex of fore and mid tibiae, and segments 1-4 of all tarsi slightly lighter.

Head from above 2.2 times as wide as long, very slightly narrower than mesosoma, finely reticulate-coriaceous; occiput with dense hair sockets, frons medially with a weak longitudinal impression. OOL:POL:LOL = 1.7:8.0:3.8. Eyes with rather sparse, short setae. Malar space 0.6 height of an eye. Head in frontal view 1.2 times as wide as high. Antenna with A1 0.7 as long as height of head, shorter than distance between inner orbits (13:14). Length:width A1-A10 = 13.0:2.2; 3.8:1.9; 1.8:1.3; 1.5:1.4; 1.5:1.4; 1.5:1.5; 1.8:1.8; 2.2:2.0; 3.0:2.1; 6.0:2.1. Flagellar pubescence very inconspicuous.

Mesosoma 1.15 times as long as wide, 1.1 times as wide as high. Sides of pronotum with dense, raised hair sockets, in lower half smooth except along hind margin. Mesoscutum densely and evenly hairy, finely and almost uniformly reticulate-coriaceous; notauli complete and smooth, slightly widened in posterior half, one of them at hind margin one-third as wide as distance between them. Mesopleuron smooth. Scutellum sculptured and hairy as mesoscutum. Metapleuron with short, whitish pilosity all over, though sparse towards upper anterior corner.

Fore wing 0.8 times as long as entire body, 2.4 times as long as wide, surpassing tip of metasoma by a distance equal to combined length of T5-T6, faintly infuscated, with fine

and dense microtrichia; submarginal vein light brown, reaching fully 0.4 length of wing (28:65); marginal cilia 0.04 width of wing. Hind wing 4.3 times as long as wide; marginal cilia 0.2 width of wing.



Figs 2-4: *Metaclisis germanica* nov.sp.: (2) female in dorsal view, (3) female in lateral view, (4) male from in front.



Figs 5-6: *Platyaster hortensis* nov.sp.: (5) female in dorsal view, (6) female in lateral view.

Metasoma about 1.2 times as long as rest of body, 1.9 times as long as wide, as wide as mesosoma, with a slight hump anteriorly. Length:width T1-T6 = 4.5:14.5; 24.0:23.5; 3.5:21.5; 2.5:17.0; 2.0:13.0; 6.0:9.0. Sternite 6 1.6 times as long as T6. T1 with fine longitudinal carinae in about anterior half, smooth behind, striae longer laterally. T2 striated over entire width in anterior 0.3, anteriorly also with a smooth roundish pubescent basal fovea on each side, hardly half as long as striation, rest of tergite smooth. T3-T6 smooth, T3-T5 with micropunctuation over most of surface. Apical

tergites with long hairs in shallow punctures: 18 on T3, 16 on T4, 14 on T5, eight on T6. Ovipositor extruded up to a length equal to about 0.6 length of metasoma.

♂. Body length 1.3 mm. Length:width A1-A10 = 13.1:2.5; 4.0:2.0; 1.2:2.0; 3.2:3.0 (measured at widest point at apex which is pointed on inner side); 2.2:2.5; 2.5:2.5; 2.5:2.5; 2.8:2.5; 2.8:2.8; 6.0:2.8. Flagellar pubescence 0.3 width of segments. Metasoma 0.9 times as long as rest of body.

C o m m e n t s . Characterised by relatively slender female antennae (though less so than in *M. suecica* BUHL, 2010) and striated T2 (though less striated than in *M. striatitergitis* SZABÓ, 1959 and *M. semistriata* BUHL & JALOSZYNSKI, 2016). The briefly described *M. ocalea* (WALKER, 1838), the type material of which is unavailable (Paolo VISCARDI, Dublin, pers. comm.) at least has, according to WALKER (1838), metasoma smooth and wider than mesosoma, and black legs. Another somewhat similar species is *M. montagnei* MANEVAL, 1936 which however has distinctly less slender female antennae than *M. germanica* (the same is the case for *M. areolata* (HALIDAY, 1836), *M. phragmitis* DEBAUCHE, 1947, and *M. semistriata* BUHL & JALOSZYNSKI, 2016). *M. triangulata* (TOMSIK, 1950) of which only the male is known has male A10 less than twice as long as A9, and legs black. All Nearctic species mentioned by MASNER (1981) appear distinctly different from *M. germanica*.

E t y m o l o g y . Named after the country with the type locality.

***Platygaster hortensis* nov.sp. (figs 5-6)**

M a t e r i a l e x a m i n e d : Holotype ♀: Germany, Thüringen, Jena, Hautklinik, 22.v.1986, yellow pan trap in garden, J. Weipert (Naturkundemuseum Erfurt). Paratypes: 14♀, same data as holotype.

D i a g n o s i s . Female A9 1.8 times as long as wide; OOL slightly shorter than LOL, occiput finely reticulate-striate all over; notauli complete; female metasoma 1.7-1.9 times as long as rest of body, T2 faintly striated to hardly half of length, medially much shorter; T4 about as long as wide; T5 about 1.5 times as long as wide, about 0.4 as wide as T2, with weak reticulation.

D e s c r i p t i o n . ♀. Body length 1.4-1.75 mm. Black; antennae, tegulae, coxae and legs dark brown; apex of fore femora and most of fore tibiae light brown; mandibles, trochanters and base and apex of mid and hind tibiae reddish brown; all tarsi light brown except dark last segment.

Head from above 2.1 times as wide as long, 1.1 times as wide as mesosoma. Occiput entirely finely transversely reticulate-striate, anteriorly behind ocellar area with 2-3 transverse carinae indicating hyperoccipital carina. Vertex reticulate-coriaceous (medially slightly transversely so). OOL:POL:LOL = 2.6:7.0:3.0. Head in frontal view 1.2 times as wide as high. Frons smooth (on larger specimens with faint, rather isodiametric reticulation) except for weak transverse reticulation narrowly along inner orbits, a few punctures in upper half, and about three weak transverse wrinkles just above antennal sockets. Antenna with A1 0.75 s long as height of head, as long as distance between inner orbits. L:W A1-A10 = 13.0:2.0; 4.0:1.8; 1.5:1.2; 2.0:1.6; 2.0:1.6; 2.0:1.6; 3.0:1.9; 3.4:2.0; 3.6:2.0; 5.0:2.0. Flagellar pubescence hardly noticeable.

Mesosoma 1.3 times as long as wide, 1.05 times as high as wide. Sides of pronotum coriaceous in upper anterior half, rest smooth. Mesoscutum with a few white, short hairs

along margins and notauli, reticulate-coriaceous, distinctly longitudinally so on most of mid lobe, smoother posteriorly and on outer half of lateral lobes. Notauli complete, meeting in a fine point touching base of scutellum. Scuto-scutellar grooves rather narrow, each with only 2-3 inconspicuous hairs. Mesopleuron smooth. Scutellum at level of mesoscutum, reticulate-coriaceous all over and with very few hairs, almost vertical behind. Metapleuron with pilosity all over. Propodeal carinae brownish, short, parallel, rather close together; area between them smooth, slightly longer than wide.

Fore wing 0.7 times as long as entire body, reaching midlength of T6, 2.4 times as long as wide, clear, with fine and dense microtrichia; marginal cilia 0.04 width of wing. Hind wing 5.2 times as long as wide, with two hamuli; marginal cilia 0.15 width of wing.

Metasoma 1.7-1.9 times as long as rest of body, about 3.4 times as long as wide, 0.85 as wide as mesosoma. L:W T1-T6 = 3.5:10.0; 18.0:16.0; 6.0:14.0; 9.0:9.0; 9.0:6.2; 10.0:6.0 (T5 up to twice as long as wide). T1 with two strong longitudinal carinae and a weaker one between them. T2 with very faintly striated basal foveae to hardly half of length, between them distinctly striated to 0.2. T3 smooth, T4 with weak reticulation laterally, T5 with weak longitudinal reticulation in about posterior half, T6 smooth. Each apical tergite with 3-5 inconspicuous setae on each side. T5 at midlength 2.0 times as wide as high. Sternite 2 with a distinct hump between hind coxae.

C o m m e n t s . Most similar to *P. gaia* BUHL, 2004, but that species has antennae slightly more slender, with A7 hardly longer than A6, it has longer OOL (= 1.4 LOL in *P. gaia*), stronger sculpture, darker body appendages, and apical tergites relatively narrower (T5 less than one-third the width of T2 in *P. gaia*) than in *P. hortensis*. *P. confinis* THOMSON, 1859 has less striated occiput than *P. hortensis*, and *P. gladiator* THOMSON, 1859 has more sculptured T2. Cf. also BUHL (1995, 2004).

E t y m o l o g y . The name refers to the type locality, a garden (hortus).

***Platygaster petasitiphila* nov.sp. (figs 7-8)**

M a t e r i a l e x a m i n e d : Holotype ♀: Germany, Thüringen, old military road SSW of Schellroda, with *Petasites hybridus* (L.) G. GAERTN. & al., 1.v.2017, ca. 430 m, J. Müller (Naturkundemuseum Erfurt).

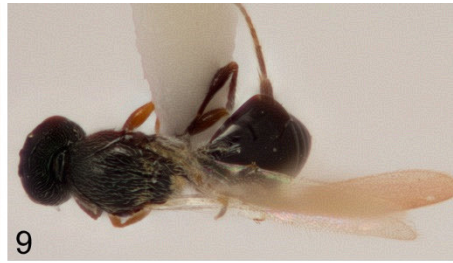
D i a g n o s i s . Female A9 2.0 times as long as wide; occiput reticulate-coriaceous, only with a couple of carinae anteriorly; notauli complete; female metasoma slightly more than twice as long as rest of body; T2 striated to half of length, slightly shorter medially; apical tergites smooth, T4 two times as long as wide, T5 almost three times as long as wide and almost 0.4 as wide as T2.

D e s c r i p t i o n . ♀. Body length 1.9 mm. Black; antennae, tegulae, coxae and legs dark brown; mandibles, trochanters, narrow apex of femora, base and apex of fore tibiae, narrow base of mid and hind tibiae, and segments 1-4 of all tarsi reddish brown.

Head from above 1.9 times as wide as long, as wide as mesosoma, with a couple of transverse carinae behind ocellar area; occiput and vertex otherwise reticulate-coriaceous (not transversely so). OOL:POL:LOL = 3.0:6.0:2.5. Head in frontal view about 1.1 times as wide as high. Eyes bare. Frons with faint isodiametric reticulation, towards sides with scattered punctures, in upper half with a smooth medial longitudinal impression from anterior ocellus, just above antennal sockets with about four weak transverse wrinkles. Antenna with A1 nearly 0.9 times as long as height of head, 1.2 times as long as distance

between inner orbits. L:W A1-A10 = 15.6:2.2; 5.0:1.7; 1.8:1.3; 3.5:1.8; 3.0:1.5; 3.0:1.7; 4.0:2.0; 4.0:2.0; 4.0:2.0; 6.0:2.0. Flagellar pubescence inconspicuous.

Mesosoma one and a third times as long as wide, 1.05 times as high as wide. Sides of pronotum finely reticulate-coriaceous (not longitudinally so), smooth in slightly more than lower half and around upper hind corner. Mesoscutum with scattered, short hairs, distinctly reticulate-coriaceous, longitudinally so postero-medially, smooth just inside tegulae. Notauli deep, smooth, complete, meeting in a fine point slightly short of reaching base of scutellum. Scuto-scutellar grooves bare, triangular, wide. Mesopleuron smooth. Scutellum with a few inconspicuous hairs, at level of mesoscutum, evenly rounded, distinctly reticulate-coriaceous. Metapleuron with pilosity all over. Propodeal carinae short, slightly diverging, widely separated; area between them much wider than long, smooth and shiny.



Figs 7-8: *Platygaster petasitiphila* nov.sp.: (7) female in dorsal view, (8) female in lateral view.
Figs 9-10: *Trichacis weiperti* nov.sp.: (9) female in dorsal view, (10) female in lateral view.

Fore wing two-thirds as long as entire body, 2.8 times as long as wide, reaching apex of T5, moderately infuscated except clear basal 0.2, with fine and dense microtrichia; marginal cilia hardly noticeable. Hind wing 5.5 times as long as wide, with two hamuli; marginal cilia about 0.1 width of wing.

Metasoma 2.1 times as long as rest of body, 4.75 times as long as wide, 0.8 times as wide as mesosoma, one and a third times as wide as high. L:W T1-T6 = 4.0:9.0; 20.0:16.0; 9.0:14.0; 15.0:7.5; 17.5:6.0; 14.0:5.5. T1 with two complete, weak longitudinal carinae, between them two short grooves, at each outer side of carinae a couple of further irregular carinae. T2 striated in basal foveae to half the length of tergite, slightly shorter medially, rest of T2 smooth as well as following tergites. Apical tergites with only a few very inconspicuous hairs. T5 parallel-sided, moderately flattened, at midlength 1.7 times as wide as high. Sternite 2 anteriorly prolonged under petiole.

C o m m e n t s . As *P. hortensis* nov.sp.similar to *P. gaia* BUHL, 2004, but with relatively narrower T2 and smoother apical tergites. Different from *P. hortensis* e.g. in sculpture and conformation of propodeal carinae. *P. petasitiphila* is also similar to *P. hyalinata* (THOMSON, 1859), but with less strongly striated occiput and metasoma. *P. petasitiphila* has apical tergites less narrow and less flattened than in *P. lanceolata* BUHL, 1996.

E t y m o l o g y . Named after the plant, butterbur, present on the type locality.

***Trichacis weiperti* nov.sp. (figs 9-10)**

M a t e r i a l e x a m i n e d : Holotype ♀: Germany, Thüringen, Schorn W of Steinthaleben, mixed oak forest, 26.v.1998, ground trap, 230 m, J. Weipert (Naturkundemuseum Erfurt).

D i a g n o s i s . Female A9 1.8 times as long as wide.

D e s c r i p t i o n . ♀. Body length 1.6 mm. Black; antennae and legs predominantly dark brown except fore legs and tarsi which are yellowish brown; hind legs slightly darker than mid legs; mandibles and A1-A2 with reddish tinge, slightly lighter than flagellum; last segment of all tarsi darker than preceding segments, much so on fore tarsi.

Head from above 1.7 times as wide as long, slightly wider than mesosoma (25:24). Occiput roughly coriaceous, antero-medially with short transverse striation. Hyperoccipital carina distinct, only slightly incomplete, longer than distance between eyes. Vertex evenly reticulate-coriaceous (not transversely so). OOL:POL:LOL = 4:9:4. OOL and distance between lateral ocellus and hyperoccipital carina both about twice the ocellar diameter. Frons almost smooth in upper half, with a longitudinal medial impression from anterior ocellus, transversely reticulate-coriaceous in lower half, just above antennal insertions transversely striated. Head in frontal view wider than high (25:22). Mandibles of ordinary shape, not sickle-shaped or widely crossing at tips. Antenna with A1 0.8 times as long as height of head, 1.25 times as long as distance between inner orbits. L:W A1-A10 = 17.5:3.0; 5.0:2.0; 2.7:1.5; 3.1:1.8; 2.0:1.8; 2.0:1.8; 3.0:2.0; 3.2:2.2; 3.6:2.0; 5.5:2.0. Flagellar pubescence very inconspicuous.

Mesosoma 1.4 times as long as wide, as wide as high. Sides of pronotum reticulate-coriaceous (not longitudinally so), smooth along narrow upper and hind margins. Mesoscutum densely and evenly hairy, reticulate-coriaceous, mid lobe smoother in about posterior 0.4, lateral lobes on outer medial part; mid lobe behind slightly, bluntly

prolonged to base of scutellum. Notauli distinct, ending abruptly shortly before reaching anterior margin. Mesopleuron smooth except for a few short wrinkles centrally on sclerite, just below middle with a depression over whole length; mesopleural carina indicated in about anterior third. Scutellum smooth, with scattered pustules with hairs; lateral margins distinctly raised, dark brown; disc postero-medially with a large, dense whitish tuft of hairs. Metapleuron with pilosity all over. Propodeal carinae parallel, area between them hardly longer than wide.

Fore wing 2.55 times as long as wide, 0.95 times as long as entire body, weakly infuscated, clear basally, with a dark patch at hardly 0.3 and a smaller one at 0.35 distance from base to apex; microtrichia fine and dense; marginal cilia 0.06 width of wing. Hind wing 5.7 times as long as wide, with two hamuli; marginal cilia 0.3 width of wing.

Metasoma 1.1 times as long as rest of body, as wide as head, just about twice as long as wide. L:W T1-T6 = 7.0:12.0; 27.0:25.0; 4.0:23.5; 4.0:20.8; 3.5:17.5; 5.4:11.0. T1 with numerous uniform fine longitudinal carinae, smooth and slightly swollen in anterior 0.3. T2 with two pubescent basal foveae to 0.3 of length, between them with striation to slightly more than 0.2 of length, rest of tergite smooth except for micropunctuation along hind margin. T3-T6 with micropunctuation over most of surface, also with weak punctures with hairs: about 8 on T3, 14 on T4, 16 on T5, and 12 on T6.

C o m m e n t s . Only *T. vitreus* BUHL, 1997 has more slender flagellar segments among the relevant species of the genus, the rest has them wider. Among SZABÓ's (1977, 1981) species of *Trichacis* only *T. bidentiscutum* has antennae approximately as slender as *T. weiperti*, but clava is 5-segmented.

E t y m o l o g y . Named after the collector, the dipterologist Jörg WEIPERT.

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