Host records for five species of Platygastrinae (Hymenoptera, Platygastridae), among them *Platygaster cirsiicola* sp. nov., with notes on bionomics and taxonomy

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New host records from Denmark are given for four species of Platygastridae with some comments on bionomics and taxonomy, *Platygaster cirsiicola* sp. nov. is described, and a mass rearing of *Platygaster robiniae* Buhl & Duso is described in detail.

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Introduction

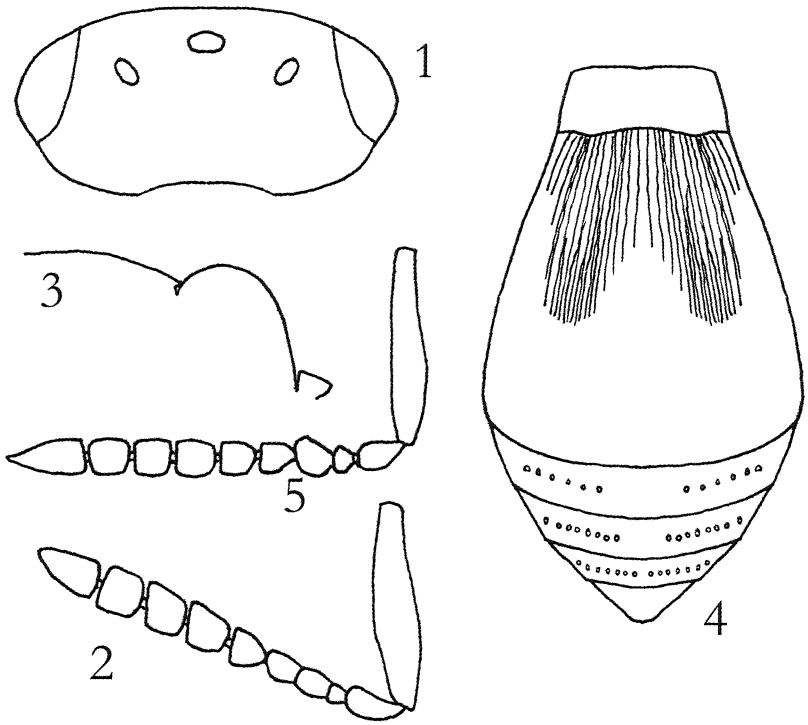
Since the publication of Buhl & Jørgensen (2010) the second author has continued collecting Cecidomyiidae (Diptera) for rearing in Denmark, and the new parasitoid material (with regard to Platygastridae) has been determined by the first author. Reared material belonging to other microhymenopteran families is still undetermined and available upon request.

Four of the species treated below have earlier been recorded from Denmark, whereas *Platygaster cirsiicola* is new to science. The determined material is preserved in the collection of the Zoological Museum, University of Copenhagen (ZMUC).

Inostemma melicerta Walker, 1835
NEZ, Venslev, 18.v.2009, 2 females, emerged 29.iv. and 2.v.2010 from flowers of *Sorbus aucuparia* Linnaeus with *Contarinia floriperda* Rübsaamen; EJ, Læsø, Lille Strandgårdsvej, 21.vi.2009, 1 female, emerged 24.-25.v.2010 from flowers of *Hypochoeris radicata* Linnaeus with *Contarinia hypochoeridis* (Rübsaamen).

Recorded from *Resseliella piceae* Seitner on *Abies alba* Miller by Skrzypczyńska (1990). The present specimens answer best to *I. melicerta* according to the keys of Kieffer (1926), Szelényi (1938) and Kozlov (1978), but as so often with regard to species of *Inostemma*, the determination is slightly doubtful because of very brief descriptions (and, indeed, few diagnostic characters). But the three specimens recorded here are certainly conspecific, the species thus being at least not monofagous in host choice, and though the cecidomyiids belong to the same genus they occur on strikingly dissimilar plants (even more so if they are conspecific with Skrzypczyńska's material).

Platygaster cirsiicola sp. nov.
Material examined. Holotype female: Denmark, NEJ, Læsø, Doktorvejen 47, in flower head of *Cirsium arvense* (Linnaeus) collected 19.vii.2010, together with *Jaapiella cirsiicola* Rübsaamen and other cecidomyiids, J. Jørgensen leg. (ZMUC). Paratypes: 5 females, 2 males same data as holotype (ZMUC).



Figs 1-5. *Platygaster cirsiicola* sp. nov., outline of: 1, head from above; 2, female antenna; 3, scutellum and propodeum in lateral view; 4, female metasoma from above; 5, male antenna.

Diagnosis. A very dark species with head distinctly more than twice as wide as long, densely and distinctly striated behind, on frons finely striated in most of lower half; female A9 very slightly wider than long; notauli visible in about posterior half; scutoscutellar grooves almost bare; female metasoma less than twice as long as wide; T1 more than twice as wide as long; T2 striated in slightly more than basal half; T3-T5 each with 12-16 distinct punctures.

Description. ***Female***. Body length 1.2-1.3 mm. Black, including antennae and legs; base and apex of dorsal part and entire ventral part of anterior tibiae, and segments 1-4 of anterior tarsi medium brown; apex of mandibles, apex of fore femora, and segments 1-4 of mid and hind tarsi dark brown.

Head from above (figs 1 and 6) 2.2 times as wide as long, 1.1 times as wide as mesosoma; occiput rounded, densely and rather finely transversely striated over entire width; vertex finely reticulate-coriaceous with a few transverse elements; frons smooth medially, in upper half only with faint reticulation close to eyes, in lower half with fine oblique striation over most of width, just above antennal sockets with a couple of transverse wrinkles. LOL (distance between lateral and anterior ocelli) = 1.1 OOL (distance between lateral ocellus and eye). Eyes with a few very inconspicuous setae. Head in frontal view (fig. 7) 1.4 times as wide as high. Antenna (figs 2 and 8) with A1 0.85 times as long as height of head, 0.90 times as long as distance between inner orbits; A9 very slightly wider than long.

Mesosoma 1.3 times as long as wide, 1.1 times as high as wide. Sides of pronotum (fig. 9) finely reticulate-coriaceous, with few longitudinal elements, smooth along narrow

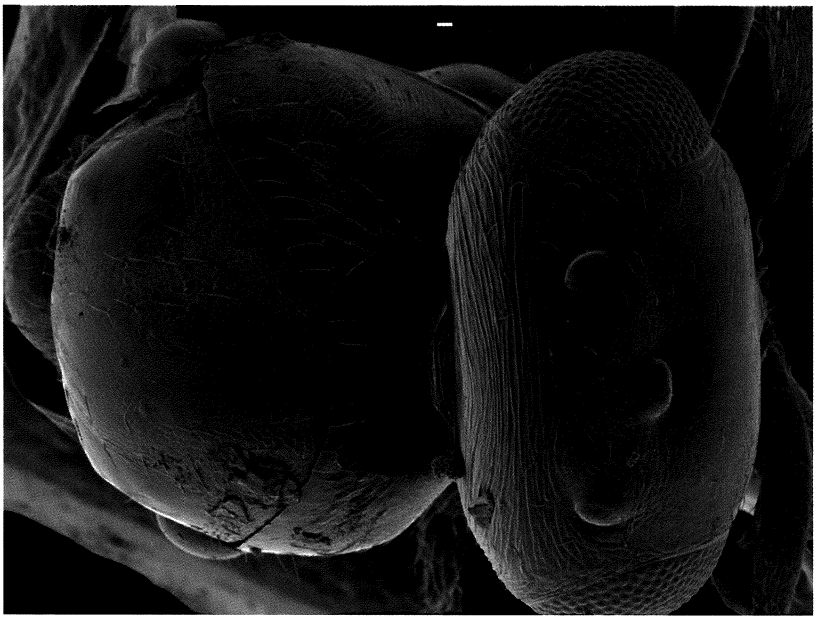


Fig. 6. *Platygaster cirsiicola* sp. nov., head from above. Scale bar = 10 μm.

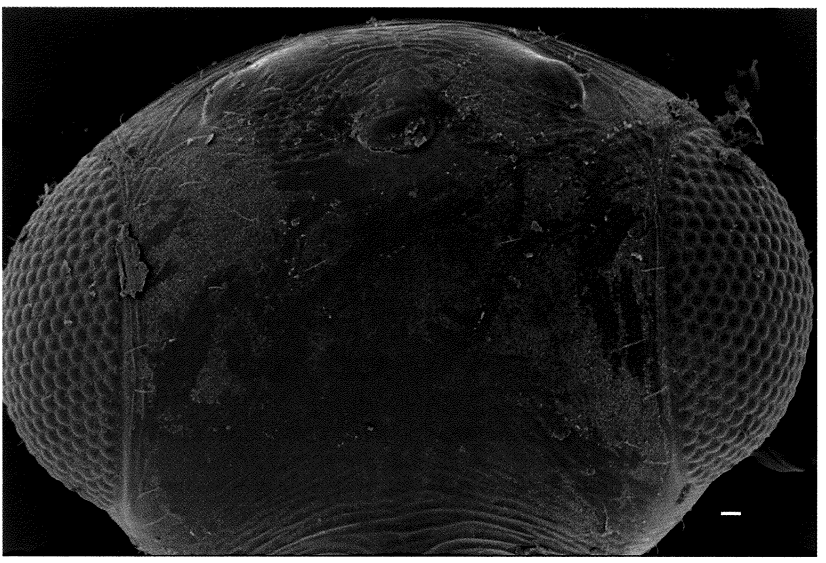


Fig. 7. *Platygaster cirsiicola* sp. nov., head in frontal view. Scale bar = 10 μm.

hind margin. Mesoscutum (fig. 10) with few setae, most of them along margins and in 2-3 rows along notaulic courses; disc finely reticulate-coriaceous, dull, smoother medially on lateral lobes and in posterior half on mid lobe; notauli weakly indicated in about posterior half, distinctly converging; mid lobe touching base of scutellum in a rather narrow point; scuto-scutellar grooves prominent, triangular, with very few, inconspicuous

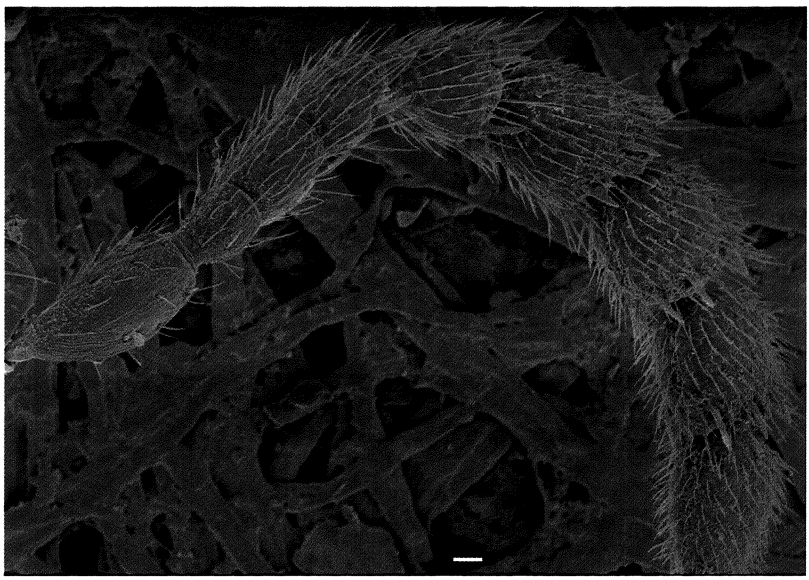


Fig. 8. *Platygaster cirsiicola* sp. nov., female antenna (segments 2-10). Scale bar = 10 μm.

Fig. 9. *Platygaster cirsiicola* sp. nov., mesosoma in lateral view. Scale bar = 10 μm.

setae. Mesopleuron smooth. Scutellum (figs 3, 9-10) distinctly convex, smooth, rather sparsely and evenly setose. Metapleuron with pilosity all over. Propodeal carinae short, parallel; area between them distinctly transverse, with a few transverse wrinkles.

Fore wing (fig. 10) clear, 0.7 times as long as entire body, extending slightly beyond tip of metasoma, 2.3 times as long as wide, with fine and moderately dense microtrichia in

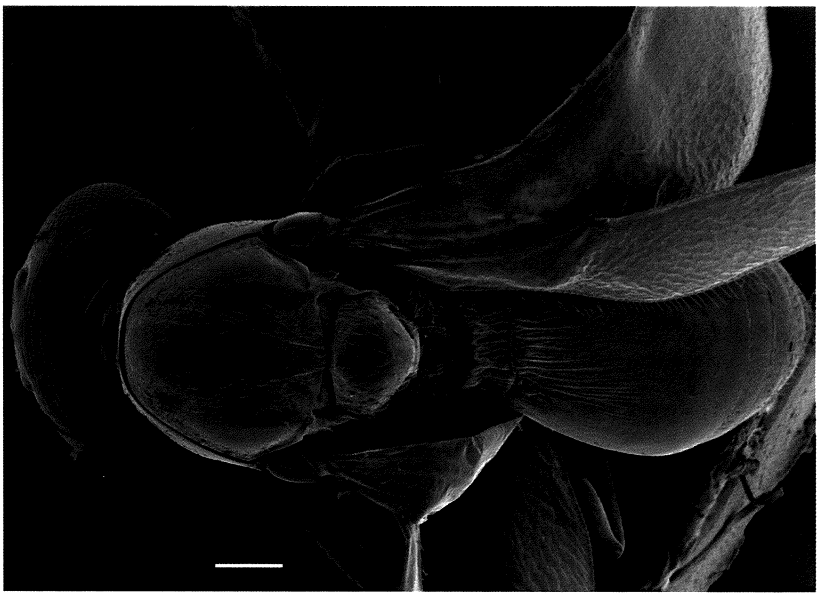


Fig. 10. *Platygaster cirsiicola* sp. nov., female from above. Scale bar = 100 μm.

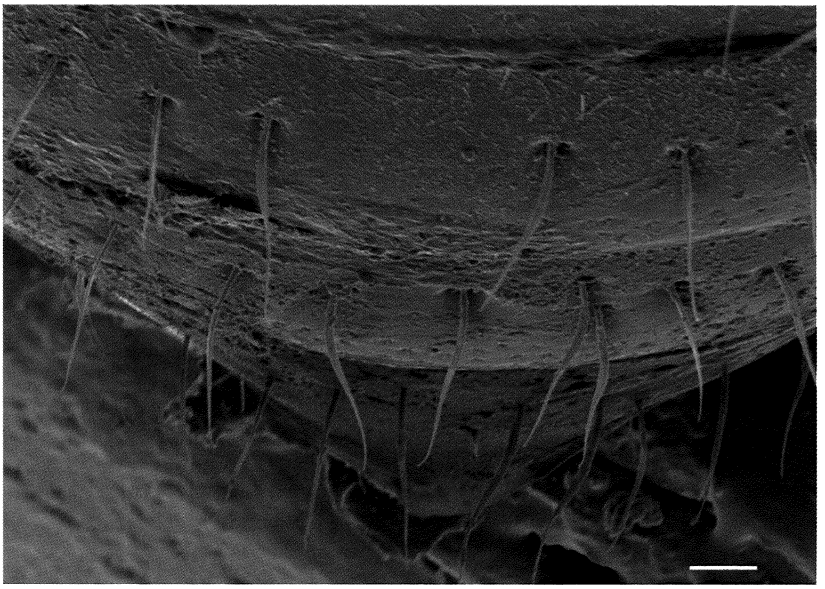


Fig. 11. *Platygaster cirsiicola* sp. nov., apex of female metasoma from above. Scale bar = 10 μm.

apical 0.45, bare basally; marginal cilia 1/12 width of wing. Hind wing 5.2 times as long as wide, with two hamuli; marginal cilia slightly more than 0.2 width of wing.

Metasoma (figs 4 and 10) about 0.9 times as long as head and mesosoma combined, slightly more than 0.9 times as wide as mesosoma, less than twice as long as wide. T1 about 2.3 times as wide as long, with about ten longitudinal carinae, bare except for a

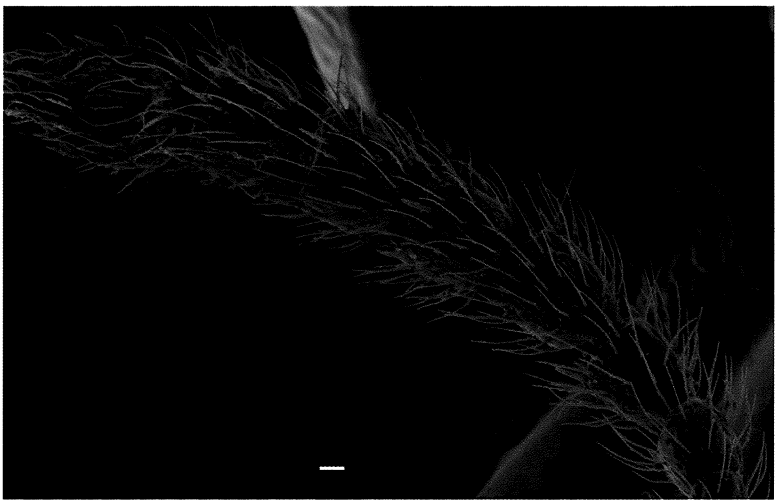


Fig. 12. *Platygaster cirsiicola* sp. nov., male antenna (segments 4-10). Scale bar = 10 μm.

few long setae standing out from sides. T2 distinctly striated from basal foveae to about 0.55 of length, medially to slightly less than 0.4 length of tergite, otherwise smooth. T3-T5 mostly smooth, with uneven traces of reticulation, each with a transverse row of distinct setae inserted in deep punctures: 12 on T3, 14-16 on T4, 14 on T5. T6 2.2 times as wide as long, with about 12 more scattered setae in less deep punctures, cf. fig. 11.

Male. Body length 1.1-1.2 mm. Antenna (figs 5 and 12) with preapical antennal segments each hardly longer than wide; flagellar pubescence half as long as width of segments. Metasoma about 0.8 times as long as head and mesosoma combined.

Comments. Hitherto no species of *Platygaster* has been recorded from *Cirsium* host plants. *P. cirsiicola* is a rather typical member of *Platygaster* s. str. but differs in significant details from similar species: *P. crenulata* Buhl, 2004 has more extensively sculptured frons, more setose scuto-scutellar grooves, and less transverse and more unevenly sculptured T1 than *P. cirsiicola*; *P. latiptera* Buhl, 2010 has head stronger sculptured, scuto-scutellar grooves with dense setae, T2 striated to almost half of length, and body appendages lighter coloured than in *P. cirsiicola*; *P. misella* Buhl, 2006 has much fewer setae on T3-T6 than *P. cirsiicola*; *P. punctiventris* Buhl, 2006 has head only 1.9 times as wide as long, scuto-scutellar grooves with numerous distinct setae, and female metasoma more than twice as long as wide; *P. intermediana* Buhl, 2009 has head only 1.9 times as wide as long, fore wing 2.6 times as long as wide, and much fewer setae on T3-T6 than *P. cirsiicola*; *P. uniformis* Buhl, 2006 has female metasoma fully twice as long as wide, T2 striated to 0.75-0.80 of length, T3 and T6 each with 8, T4-T5 each with 10 punctures with setae; *P. cirsiicola* runs to *P. manto* Walker, 1835 in Vlug's (1985) key, but *P. manto* has smoother frons and mesosocutum, propodeal carinae diverging, T2 striated only in anterior 1/3, and body appendages lighter than in *P. cirsiicola*; in Kieffer's (1926) key *P. cirsiicola* runs to *P. verrucosa* Kieffer, 1916, but this species has female antennae more slender (A7 1.5 times as long as wide), striae of T2 not reaching middle of tergite, and body appendages lighter than in *P. cirsiicola*, cf. also redescription of *P. verrucosa* in Buhl & Jørgensen (2010).

Etymology. The name of the new species refers to its host plant (the host plant of its cecidomiid host, possibly *Jaapiella cirsiicola*).

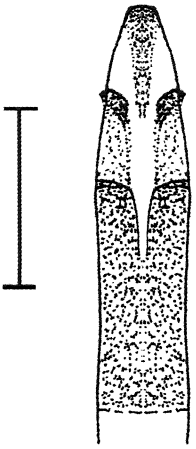


Fig. 13. Male genitalia of *Platygaster tisias* Walker (from Eastern Jutland, Læsø, 27.vi.-2.vii.2009). Scale bar = 100 μm.

Platygaster robiniae Buhl & Duso, 2008
NEZ, Holte, x.2010, long series of specimens from *Obolodiplosis robiniae* (Haldeman) on *Robinia pseudacacia* Linnaeus.
Host and parasitoid were recorded for the first time from Denmark from the same locality by Jørgensen (2009). The sex ratio of the wasp seems to be about 50/50: of 60 randomly examined specimens from the present material, 28 were females, 32 were males. Females and males were mixed in each clutch.

Also, on the same locality (Holte, 19-20.ix.2010) 100 young leaves of *Robinia pseudacacia* with a total of 128 galls were collected. 55 were empty, 53 contained *Platygaster robiniae* (larvae and pupae), and the remaining 20 were with larvae of *Obolodiplosis robiniae* (of which some possibly contained *P. robiniae* in early stages of development). Most *P. robiniae* were in the pupal stage, but numerous empty pupal skins (i.e. reared platygastrids) were also present. The number of parasitoids present in each host varied from 4 to 14, most contained 7 to 8, but four midge larvae contained 14 wasps. The mean number was 7.8.

Platygaster tisias Walker, 1835
EJ, Læsø, in dunes, 27.vi.-2.vii.2009, 2 females, 5 males, emerged 10.-13.v.2010 from *Dactylis glomerata* Linnaeus (cecidomyiid host unidentified).

Büchi & Keller (1994) recorded this species from *Dasineura brassicae* (Winnertz) on *Brassica*. According to Vlug (1985) *P. tisias* is probably conspecific with *P. deipyla* Walker, 1835 and *P. plotina* Walker, 1835 (the bionomics of which are also unknown). The present material was determined on the basis of the females by using Vlug's (1985) key. Both female and male of *P. plotina* have been described, but only the female of *P. tisias*, and only the male of *P. deipyla*. Further rearings may elucidate the question of their synonymy, and perhaps also the structure of the male genitalia could be useful, cf. fig. 13, though these are probably very similar without striking features for separating species as usually in this subfamily.

Synopeas larides (Walker, 1835)
NEZ, Venslev, 18.v.2009, 1 male, emerged 26.iv.2010 from leaves of *Ribes nigrum* Linnaeus with *Dasineura tetensi* (Rübsaamen).

Bionomics hitherto unknown (Vlug, 1995). The taxonomy and occurrence of this common spring species was discussed in detail by Buhl (2010).

Dansk sammendrag

Værtsangivelser for fem arter af Platygastridae med taksonomiske og biologiske kommentarer

Følgende sorthvepse er klækket fra galmyg i Danmark: *Inostemma melicerta* Walker fra *Contarinia floriperda* Rübsaamen på *Sorbus aucuparia* L., og fra *Contarinia hypochoeridis* (Rübsaamen) på *Hypochoeris radicata* L.; *Platygaster cirsiicola* sp. nov. fra galmyg (*Jaapiella cirsiicola* Rübsaamen?) på *Cirsium arvense* (L.); *Platygaster tisias* Walker fra galmyg på *Dactylis glomerata* L.; *Synopeas larides* (Walker) fra *Dasineura tetensi* (Rübsaamen) på *Dasineura tetensi* (Rübsaamen). Disse er hidtil ukendte værtsforhold. *Platygaster robiniae* Buhl & Duso, 2008 rapporteres fra sin allerede velkendte vært *Obolodiplosis robiniae* (Haldeman) på *Robinia pseudacacia* L., og omstændigheder omkring hvepsenes klækning (bl.a. kønsfordeling og individantal) beskrives.

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