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## **New species of Platygastriinae from Sweden and Denmark (Hymenoptera, Platygastriidae)**

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### **Abstract**

Four species are described as new to science: *Leptacis ivarssonae*, *Platygaster lilleoeensis*, *Synopeas anderssoni*, and *S. stigenbergae*. The work is illustrated by 16 text-figures.

### **Zusammenfassung**

Vier neue Arten von Platygastriinae werden beschrieben: *Leptacis ivarssonae*, *Platygaster lilleoeensis*, *Synopeas anderssoni* und *S. stigenbergae*. Die Arbeit ist mit 16 Abbildungen versehen.

### **Introduction**

Hitherto ten new species of Platygastriinae have been described as a result of the Swedish Malaise Trap Project (about this, cf. KARLSSON et al. 2005). In this paper, three further

species obtained during the project are described, as well as one further species swept in Denmark by the author.

The material is deposited in the Swedish Museum of Natural History in Stockholm (SMNH) and in the Zoological Museum, University of Copenhagen (ZMUC).

**T e r m i n o l o g y** : Standard abbreviations used are A1-A10 = antennal segments 1-10, OOL = distance between lateral ocellus and eye, LOL = distance between lateral and anterior ocelli, and T1-T6 = tergites 1-6.

***Leptacis ivarssonae* nov.sp. (figs 1-4)**

**M a t e r i a l e x a m i n e d** : Holotype ♀: Sweden, Sm, Gränna kommun, Lönnemålen, next to old cellar in Norway spruce forest with big harvested ashes (N 58°02.935 E 14°34.382), 17.vii.-31.viii.2005, Swedish Malaise Trap Project (SMNH).

**D i a g n o s i s** . Head without hyperoccipital carina; female A4 1.33 as long as each of A3 and A5; A6 as long as each of A4 and A7, slightly more than twice as long as wide; A9 slightly wider than long; notauli absent; fore wing 2.6 times as long as wide, marginal cilia 0.17 width of wing; scutellar spine in lateral view 0.8 as long as propodeum; female metasoma very slightly shorter than rest of body.

**D e s c r i p t i o n** . ♀. Body length 1.3 mm. Black, ventrally on meso- and metasoma with dark brown tint, T1 light brownish; antennae, mandibles, tegulae and legs including coxae light brownish, flagellum slightly darkened towards apex.

Head from above (fig. 1) 1.75 times as wide as long, about as wide as mesosoma, without hyperoccipital carina, evenly rounded, distinctly reticulate-coriaceous, above antennal insertions transversely so. LOL = 2 OOL. Eyes bare. Head in frontal view 1.25 times as wide as high. Antenna (fig. 2) with A1 shorter than height of head (16:17), longer than distance between inner orbits (16:15); A9 about 1.15 times as wide as long. Relative length of antennal segments 1-10: 16, 3.3, 3, 4, 3, 4, 4, 3.5, 3.5, 5. Flagellar pubescence distinct.

Mesosoma 1.4 times as long as wide, hardly noticeable wider than high. Sides of pronotum distinctly reticulate-coriaceous in upper half (not longitudinally so), in most of lower half smoother and with fine longitudinal microsculpture. Mesoscutum with sparse, unevenly distributed setae (most around imaginary notaulic courses), uniformly dull reticulate-coriaceous, without notauli; hind margin straight; each of the large, triangular scuto-scutellar grooves with hardly more than four inconspicuous setae. Mesopleuron smooth in slightly more than lower half and along anterior 0.3 of length, rest with fine longitudinal striation. Scutellum (fig. 3) uniformly sculptured as mesoscutum, moderately densely setose, with a distinct translucent spine without lamella. Metapleuron smooth, bare in anterior half and upper third, rest with rather sparse pilosity and a narrow longitudinal row of pilae to anterior margin just above midheight. Propodeal carinae light brown, very slightly diverging, distinctly separated, slightly elongate area between them smooth.

Fore wing almost clear, slightly longer than entire body (83:79), 2.6 times as long as wide, with fine and dense microtrichia; marginal cilia 0.17 width of wing. Hind wing 7.9 times as long as wide; marginal cilia 0.75 width of wing.

Metasoma (fig. 4) shorter than head and mesosoma combined (39:41), very slightly wider than mesosoma. T1 with two strong longitudinal carinae. T2 basally with two roundish and slightly pubescent basal foveae to one-sixth the length of tergite, wide hind margin of T2 (to one-sixth the length of tergite) and most of T3-T6 finely but distinctly reticulate; apical tergites with fine setae in shallow punctures (about 6 on T3, 12 on T4, 10 on each of T5-T6).

**C o m m e n t s .** Somewhat similar to *L. kozlovi* BUHL 1997, but *L. ivarssonae* has A5-A6 much longer than in *L. kozlovi*, A9 wider, scutellar spine shorter and lower relative to propodeum, and longer and narrower wings with longer marginal cilia, cf. also BUHL (1997). *L. ivarssonae* differs from *L. kopenhageni* BUHL 2012 e.g. in having A5-A6 much longer, marginal cilia of wings much shorter, and metasoma distinctly less pointed.

**E t y m o l o g y .** Named after Sofia IVARSSON at the Swedish Malaise Trap Project.

### ***Platygaster lilleoensis* nov.sp. (figs 5-8)**

**M a t e r i a l e x a m i n e d :** Holotype ♀: Denmark, LFM, Lilleø N. of Askø (N 54°54'35'' E 11°29'0''), 11.vii.2011, swept, P.N. BUHL leg. (ZMUC).

**D i a g n o s i s .** A dark, shiny species, head behind strongly, almost half-circularly striated all over; female A9 about 1.15 times as long as wide; notauli virtually complete, mesoscutum mostly and scutellum completely smooth; female metasoma 1.4 times as long as rest of body; T2 medially distinctly striated to about 0.3 of length, laterally slightly longer, faintly striated; T3-T6 smooth, combined slightly more than 1.5 times as long as T2; sternite 2 not sac-like prolonged anteriorly.

**D e s c r i p t i o n .** ♀. Body length 1.5 mm. Shiny black, body appendages hardly lighter except mandibles, base and apex of tibiae and segments 1-4 of tarsi which are more or less dark brownish.

Head from above (figs 5 and 7) 1.9 times as wide as long, 1.15 times as wide as mesosoma; occiput rounded and strongly, almost half-circularly striated all over (most of striae slightly angled medially); vertex irregularly coriaceous between ocelli, laterally transversely striated; frons all over finely but distinctly, obliquely striated out from a longitudinal midline. LOL = 1.1 OOL. Head in frontal view 1.2 times as wide as high. Antenna (figs 5-6) with A1 shorter than height of head (15:18), about as long as distance between inner orbits; A9 about 1.15 times as long as wide. Antennal segments 1-10 in proportions (length:width): 15:2.8; 4.1:1.9; 1.5:1.5; 2.4:2; 2:2; 2:2; 2.8:2.2; 3:2.5; 2.9:2.5; 4:2.5.

Mesosoma (figs 5-6) 1.4 times as long as wide, slightly more than 1.1 times as high as wide. Sides of pronotum smooth except for rugosity in upper anterior corner, but with scattered seta-implantations over most of surface. Mesoscutum with sparse setae along notauli and margins, smooth except for reticulate-coriaceous microsculpture around

anterior end of notauli, and with faint longitudinal wrinkles in posterior half; notauli deep, ending very shortly before reaching anterior margin, mid lobe behind slightly and rather narrowly prolonged to base of scutellum; parallel, raised admedian lines indicated on anterior third of disc; scuto-scutellar grooves moderately wide, each with about six long setae. Mesopleuron smooth. Scutellum slightly above level of mesoscutum, evenly convex, smooth, moderately and evenly setose. Metapleuron almost smooth, with moderately dense pilosity all over. Propodeal carinae short, parallel, broad with sculptured surface; slightly transverse area between them with shiny but uneven surface.

Fore wing 2.5 times as long as wide, just reaching apex of metasoma, 0.7 times as long as entire body, almost clear, with fine and dense microtrichia; marginal cilia 0.05 width of wing. Hind wing 5.4 times as long as wide, with two hamuli; marginal cilia hardly 0.2 width of wing.

Metasoma (figs 6 and 8) 1.4 times as long as head and mesosoma combined, about twice as long as mesosoma, very slightly narrower than this, at its widest 1.75 times as wide as high. T1 with two strong longitudinal carinae, smooth except for fine coriaceous sculpture at anterior margin. T2 very weakly longitudinally striated from slopes of otherwise smooth basal foveae to slightly less than half the length of tergite, medially stronger striated to almost 0.3 of length, rest of tergite as well as following tergites smooth. T3-T6 combined slightly more than 1.5 times as long as T2, with inconspicuous setae in shallow punctures: six on T3 (in a transverse row), 8-10 on each of T4-T6 (irregularly along sides of these). Sternite 2 not prolonged anteriorly (anterior margin in lateral view only slightly acutely angled). Apical tergites not particularly flattened (T5 1.75 times as wide as high).

**C o m m e n t s .** This species is characterised by the strongly striated but shiny occiput, much stronger striated than in e.g. *P. nigerrimus* THOMSON 1859. *P. lilleoensis* runs to *P. marchali* KIEFFER 1906 in KIEFFER's (1926) key, but *P. marchali* has head dull behind, sternite 2 sac-like prolonged anteriorly and female metasoma shorter, apical tergites combined being hardly longer than T2, cf. also KIEFFER (1906).

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

### ***Synopeas anderssoni* nov.sp. (figs 9-11)**

**M a t e r i a l e x a m i n e d :** Holotype ♀: Sweden, Up, Norrtälje kommun, Svartlöga, Matkrok, maritime deciduous wood (N 59°34.167' E 19°03.180'), 26.viii.-10.x.2004, Swedish Malaise Trap Project (SMNH). Paratypes: 3 ♀♀ same data (SMNH); 1 ♀, Denmark, F, Snarup Have (N 55° 9' 16.570'' E 10° 26'36.498''), 1.viii.2011, swept, P.N. BUHL leg. (ZMUC).

**D i a g n o s i s .** Head 1.8 times as wide as long with strong hyperoccipital carina; female A2 as long as A3-A4 combined, A9 1.5 times as wide as long; scutellum with a translucent vertical lamella which is tooth-like prolonged above; fore wing 0.9-1.0 as long as body; female metasoma 0.9-1.0 times as long as rest of body, about twice as long as wide, 1.2-1.3 times as wide as high.

**Description.** ♀. Body length 1.0-1.2 mm. Shiny black; A1-A6 and legs light yellowish brown; A8-A10, mandibles, tegulae, coxae and last segment of tarsi more or less dark brown, hind femora and hind tibiae slightly darkened towards apex, A7 intermediate in colour between A6 and A8.

Head from above (fig. 9) 1.8 times as wide as long, 1.05 times as wide as mesosoma, distinctly reticulate-coriaceous (only on anterior part of occiput slightly transversely so); hyperoccipital carina complete and rather strong. LOL = 3 OOL. Head in frontal view 1.1 times as wide as high. Antenna with A1 shorter than height of head (15:16), 1.3 times as long as distance between inner orbits; A2 as long as A3-A4 combined; A9 1.5 times as wide as long.

Mesosoma (figs 10-11) 1.4 times as long as wide, 1.15 times as high as wide. Sides of pronotum weakly reticulate-coriaceous (not longitudinally so) in upper half, in lower half smooth or almost smooth (with faint traces of longitudinal sculpture). Mesoscutum evenly and moderately densely setose, finely and almost uniformly reticulate-coriaceous; notauli sometimes faintly indicated in up to posterior half, meeting in a narrow, short, dark, almost smooth prolongation to base of scutellum, at each side of this with 8-9 long setae above the rather wide and smooth scuto-scutellar grooves. Mesopleuron smooth. Scutellum evenly setose, denser so than mesoscutum, smooth, towards margins very faintly coriaceous, posteriorly with a translucent vertical lamella which is slightly tooth-like prolonged behind in upper part. Metapleuron smooth, in posterior half slightly dull, with sparse pilosity, in anterior 0.2 almost bare. Propodeal carinae dark, close together.

Fore wing between slightly more than 0.9 to almost 1.0 times as long as entire body, 2.5 times as long as wide, clear, with fine and dense microtrichia; marginal cilia 0.04 width of wing. Hind wing 5.7 times as long as wide; marginal cilia one-third the width of wing.

Metasoma (figs 10-11) 0.9-1.0 times as long as head and mesosoma combined, 1.25-1.3 times as long as mesosoma, from hardly 0.9 to 0.95 times as wide as this, about twice as long as wide, 1.2-1.3 times as wide as high. T1 with three longitudinal carinae, laterally on junction between T1 and T2 with dense pubescence. T2 smooth, on very narrow hind margin slightly coriaceous. T3-T6 combined slightly more than half as long as T1-T2 combined, with reticulate-coriaceous microsculpture over most of surface and with fine setae in shallow punctures (only a couple on T3, 6-8 on each of T4-T6); T6 two-thirds as long as its basal width.

**Comments.** Generally similar to *S. lugubre* THOMSON 1859 but with more tooth-like scutellar lamella, fore wing not distinctly shorter than body, longer, narrower and less depressed metasoma, and body appendages lighter than in *S. lugubre*. Slightly less similar to *S. anderssoni* is *S. blascoi* BUHL 1999 which has female A9 as long as wide and metasoma 1.5 times as wide as high.

**Etymology.** Named after Mr Sven ANDERSSON who tended the Malaise trap on the holotype locality.

***Synopeas stigenbergae* nov.sp. (figs 12-16)**

**Material examined:** Holotype ♀: Sweden, Up, Älvkarleby kommun, Marma skjutfält, dry meadow with birch (N 60°31.456 E 17°27.089), 12.-26.viii.2003, Swedish Malaise Trap Project (SMNH). Paratypes: 2♀ ♀, 1♂ same data as holotype; 5♀ ♀ same data but 29.vii.-12.viii.2003 (SMNH).

**Diagnosis.** Head from above 1.75 times as wide as long, in frontal view as high as wide, with strong hyperoccipital carina; female A2 as long as A3-A4 combined, A9 1.5 times as wide as long; notauli absent; scutellar spine in lateral view half as long as propodeum; fore wings with very short marginal cilia; female metasoma about as long as rest of body, 1.3 times as wide as high, distinctly sculptured behind; body appendages reddish-brown, partly darker.

**Description.** ♀. Body length 1.1-1.2 mm. Black; A7-A10 and coxae very dark brown; A1-A6, mandibles and legs reddish brown with most of mid and hind femora, distal half of hind tibiae and apex of all tarsi darkened.

Head from above (fig. 12) 1.75 times as wide as long, 1.1 times as wide as mesosoma, finely reticulate-coriaceous, transversely so only medially on occiput and near antennal sockets; hyperoccipital carina strong and complete. OOL about half of LOL. Eyes with short, scattered setae. Head in frontal view as high as wide, vertex rather strongly convex. Antenna (fig. 13) with A1 shorter than height of head (14:17), 1.2 times as long as distance between inner orbits; A9 about 1.5 times as wide as long.

Mesosoma (figs 14-16) 1.6 times as long as wide, 1.15 times as high as wide. Sides of pronotum weakly reticulate (not longitudinally so) in slightly more than upper half, smooth below and along hind margin. Mesoscutum evenly and moderately densely setose, finely reticulate-coriaceous, smoother postero-medially just in front of scutellum; notauli absent; hind margin medially with a smooth, dark, flat prolongation which is about as long as wide, slightly narrowed posteriorly, touching base of scutellum, at each side with about six golden, long setae above scuto-scutellar grooves. Mesopleuron smooth. Scutellum along middle smooth and with few setae, towards sides denser setose, posteriorly dark, with a distinct spine which is half as long as propodeal carinae (sometimes spine is dark brownish). Metapleuron smooth and bare in most of anterior half, rest, including lower margin, with dense whitish pilosity. Propodeal carinae brown translucent, fused.

Fore wing (fig. 16) 0.9 times as long as entire body, 2.6 times as long as wide, almost clear, with fine and dense microtrichia except in basal 0.3; marginal cilia very short. Hind wing (fig. 14) 6.1 times as long as wide; marginal cilia slightly less than 0.4 width of wing.

Metasoma (figs 14-15) 0.95 times as long as to slightly longer (36:35) than head and mesosoma combined, very slightly wider than mesosoma, 1.3 times as wide as high, twice as long as wide. T1 with weak longitudinal carinae which do not continue on T2, on most of surface except medially with dense white pubescence which continues over base of T2, this smooth; T3-T6 with weak rugosity and fine setae in shallow punctures (none on T3, 6 on T4, 10 on T5, 12 on T6); T6 1.5 times as wide as long.

♂. Body length 1.0 mm. Antenna with A4 rather strongly widened, twice as long as A3, preapical antennal segments each about 2.5 times as long as wide; flagellar pubescence distinct, about two-thirds as long as width of segments. Fore wing longer than entire body (63:59). Metasoma shorter than mesosoma (24:26). Legs including coxae uniformly yellowish brown.

**C o m m e n t s .** Similar to *S. bohemani* BUHL 1998, but this species has female A3-A4 combined distinctly longer than A2, and A9 about as long as wide, marginal cilia of fore wings absent, of hind wings only 0.25 of wing width, metasoma more pubescent anteriorly, 1.7 times as wide as high, and brighter coloured body appendages. *S. stigenbergae* has stronger hyperoccipital carina, much stronger scutellar spine, slightly less elongate fore and hind wings with shorter marginal cilia, less smooth and slightly wider metasoma and darker body appendages than the even more similar *S. ronquisti* BUHL 2010 which furthermore has head in frontal view distinctly wider than high (*S. stigenbergae* has vertex more convex than *S. ronquisti* and head also in dorsal view less transverse). *S. stigenbergae* is generally slightly more dull and setose than *S. ronquisti* (this having e.g. T3-T4 bare, T5-T6 each with only six setae), and it has metasoma more pointed (T6 being fully 1.75 times as wide as long in *S. ronquisti*). *S. stigenbergae* and *S. ronquisti* are indeed close, but given the mentioned differences it would surprise me if intermediate specimens will be discovered.

**E t y m o l o g y .** Named after Julia STIGENBERG at the Swedish Malaise Trap Project.

### Acknowledgements

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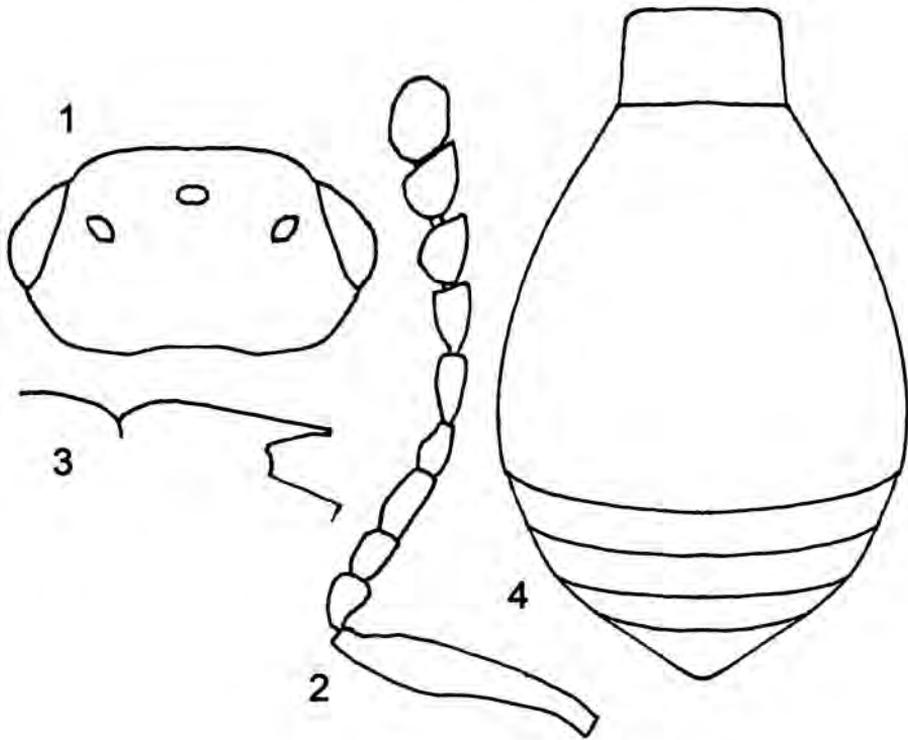
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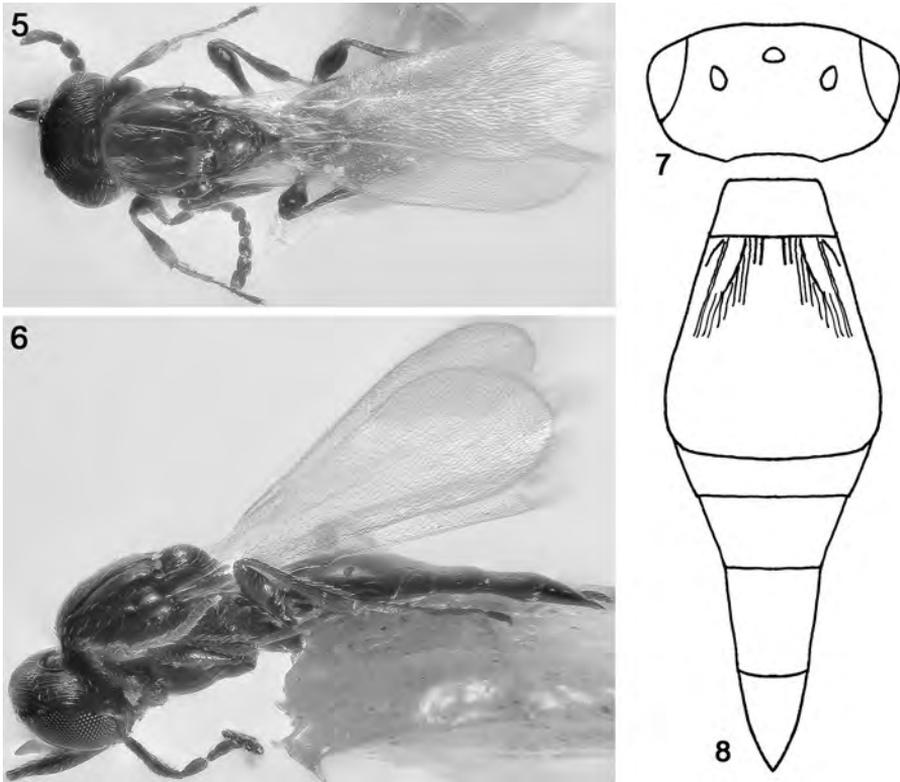
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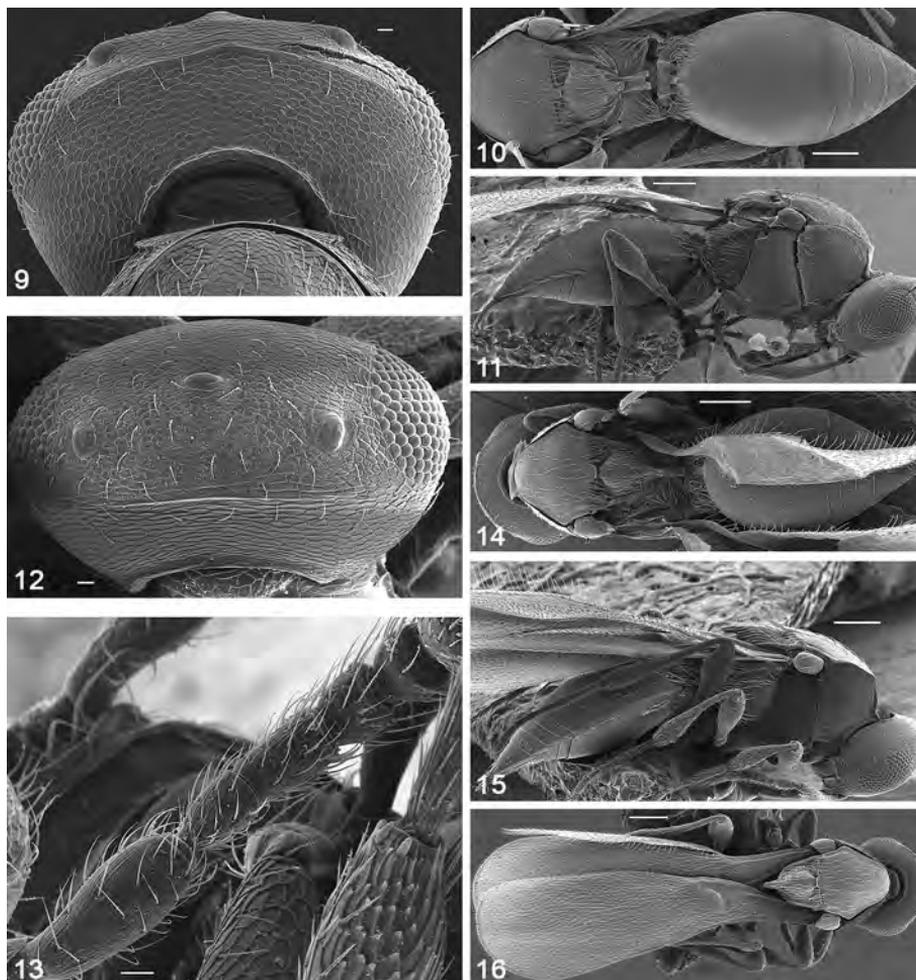
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**Figs 1-4:** *Leptacis ivarssonae* nov.sp. ♀: (1) head, (2) antenna, (3) scutellum and propodeum, (4) metasoma.



**Fig. 5-8:** (5) *Platygaster lilloeensis* nov.sp. ♀, body in dorsal view. (6) *Platygaster lilloeensis* nov.sp. ♀, body in lateral view. (7-8) *Platygaster lilloeensis* nov.sp. ♀: (7) head, (8) metasoma.



**Fig. 9-16:** (9) *Synopeas anderssoni* nov.sp. ♀, head seen obliquely from behind. Scale bar = 10 µm. (10) *Synopeas anderssoni* nov.sp. ♀, meso- and metasoma in dorsal view. Scale bar = 100 µm. (11) *Synopeas anderssoni* nov.sp. ♀, body in lateral view. Scale bar = 100 µm. (12) *Synopeas stigenbergae* nov.sp. ♀, head in dorsal view. Scale bar = 10 µm. (13) *Synopeas stigenbergae* nov.sp. ♀, antennal segments 2-6. Scale bar = 10 µm. (14) *Synopeas stigenbergae* nov.sp. ♀, body in dorsal view. Scale bar = 100 µm. (15) *Synopeas stigenbergae* nov.sp. ♀, body in lateral view. Scale bar = 100 µm. (16) *Synopeas stigenbergae* nov.sp. ♀, body in dorsal view showing wings. Scale bar = 100 µm.

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