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## **Three new species of Platygastriinae from Malaysia (Hymenoptera, Platygasteridae)**

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### **Abstract**

The following three species are described as new to science: *Leptacis joenssoni*, *Synopeas vinklundi*, and *S. westergardi*. The work is illustrated by 13 text-figures.

### **Zusammenfassung**

Die folgenden drei neuen Arten werden beschrieben: *Leptacis joenssoni*, *Synopeas vinklundi* und *S. westergardi*. Die Arbeit ist mit 13 Abbildungen versehen.

### **Introduction**

From curator Bert VIKLUND at the Swedish Museum of Natural History I recently received some additional few platygastriid specimens from his collecting work in Sabah, Malaysia. The major part of the platygastriid specimens from this trip was described by BUHL (2009a). A few further distinct new species from the new material are described below.

Terminology: 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.

The material is deposited in the Swedish Museum of Natural History, Stockholm (SMNH).

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

Material examined. Holotype female: Malaysia, Sabah, Tawau, Maliau Basin, riparian nature trail, 254 m.a.o. (04°44'34.4''N, 116°58'12.2''E), 6.-11.xii.2007, Malaise trap, B. VIKLUND & N. JÖNSSON leg. (SMNH).

Diagnosis. Head without hyperoccipital carina; eyes with long, sparse setae; female A9 as wide as long; fore wing 3.3 times as long as wide, with marginal cilia nearly half the width of wing; female metasoma shorter than rest of body.

Description. Female: Body length 0.65 mm. Body black; A1 and legs including coxae light brownish; tegulae and A2-A6 very dark brown.

Head from above (fig. 1) 1.8 times as wide as long, wider than mesosoma (12:11), without hyperoccipital carina, distinctly reticulate-coriaceous with large meshes which are strongly transverse on occiput and vertex. Eyes with numerous setae which are about 20 µm long. OOL about half as long as diameter of lateral ocellus. Head in frontal view 1.1 times as wide as high. Antenna (fig. 2) with A1 0.8 times as long as height of head, 1.2 times as long as distance between inner orbits; A9 as wide as long; flagellar pubescence dense, about one-third the width of segments, with numerous erect setae equal in length to width of segments.

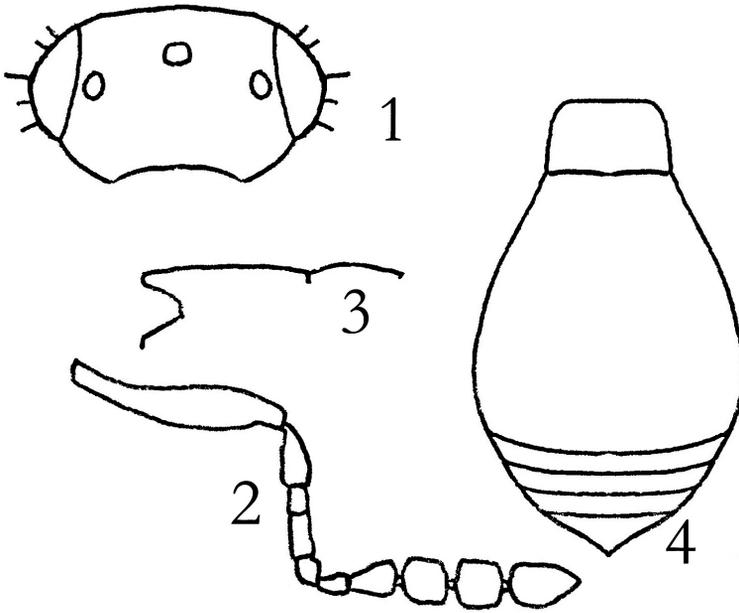
Mesosoma 1.5 times as long as wide, 1.2 times as high as wide. Sides of pronotum reticulate-coriaceous in slightly less than anterior half of upper 0.4, rest smooth. Mesoscutum evenly and moderately densely setose, weakly reticulate-coriaceous (strongest in anterior half), without notauli; hind margin medially very slightly prolonged, at each side with about four long setae. Mesopleuron smooth. Scutellum (fig. 3) sculptured and setose almost as mesoscutum, with a brownish spine which is as long as propodeum, slightly transparent below it. Metapleuron smooth and bare in slightly more than anterior half, rest with whitish pilosity. Propodeal carinae slightly brownish, low, straight, very slightly diverging, clearly separated; area between them slightly elongate, smooth and shiny.

Fore wing 0.95 times as long as entire body, 3.3 times as long as wide, faintly infuscated, with fine and dense microtrichia; marginal cilia 0.45 width of wing. Hind wing 10 times as long as wide; marginal cilia 1.3 width of wing.

Metasoma (fig. 4) 0.9 times as long as head and mesosoma combined, 1.1 times as long as mesosoma, as wide as this. T1 with two parallel longitudinal carinae, smooth and bare between them, at sides with short pubescence which continues in the small basal foveae on T2, this tergite smooth except for a few punctures in posterior half; T3-T6 smooth at base, reticulate posteriorly (T6 only smooth along anterior margin), virtually bare.

Affinities. Similar to *L. antennalis* BUHL, 1997 from the Philippines in structure of head and setosity of eyes, but *L. antennalis* has A7-A9 each twice as long as wide, and marginal cilia of wings shorter. *L. joenssoni* runs to Malaysian *L. pulla* BUHL, 2002 in BUHL's (2008b) key to Oriental *Leptacis*, but apart from lacking long setae on eyes, *L. pulla* has A1 as long as height of head, basal flagellar segments relatively longer than in *L. joenssoni*, mesosoma 1.7 times as long as wide, mesopleuron with furrows below tegula, and scutellar spine longer and stronger than in *L. joenssoni*, cf. BUHL (2002).

Etymology. Named after one of the collectors, Niklas JÖNSSON at the Swedish Museum of Natural History.



Figs 1-4 *Leptacis joenssoni* sp. nov. female: 1 head, 2 antenna, 3 scutellum and propodeum, 4 metasoma.

***Synopeas viklundi* sp. nov.** (figs 5-8)

Material examined. Holotype female: Malaysia, Sabah, Tawau, Maliau Basin, riparian nature trail, 254 m (04°44'36.7''N, 116°58'20.9''E), 6.-11.xii.2007, Malaise trap, B. VIKLUND & N. JÖNSSON leg. (SMNH).

Diagnosis. Hyperoccipital carina distinct; female A9 1.5 times as wide as long; notauli absent; scutellum behind with a rather wide, vertical lamella; metasoma hardly as long as mesosoma, 1.4 times as wide as high.

Description. Female. Body length 1.0 mm. Body black, mesosoma laterally, coxae and trochanters dark chestnut brown; A1-A6 and legs light brownish yellow, apical 0.4 of hind tibiae very slightly darkened; mandibles and A7-A10 very dark brown.

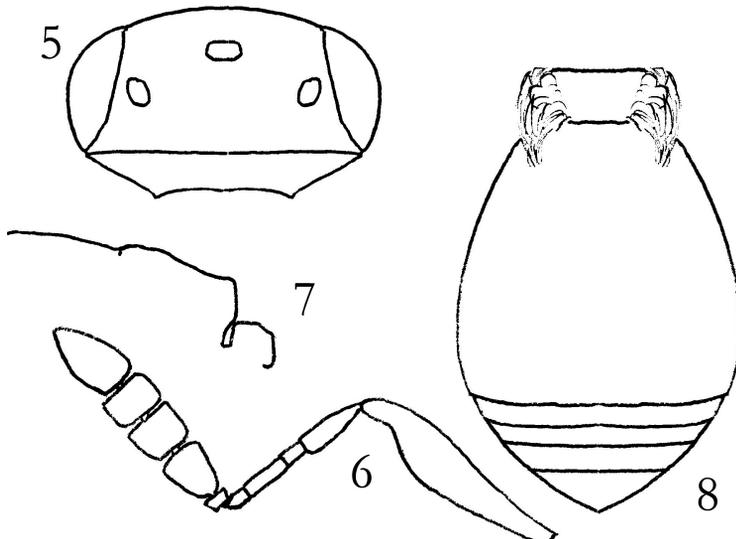
Head from above (fig. 5) 1.8 times as wide as long, almost 1.1 times as wide as mesosoma, finely reticulate-coriaceous (hardly transversely so), meshes most distinct on occiput; hyperoccipital carina complete and rather strong; frons in lower half with a longitudinal midline, laterally with a few weak transverse elements. OOL slightly shorter than shorter diameter of lateral ocellus; LOL = 3 OOL. Eyes bare. Head in frontal view 1.1 times as wide as high. Antenna (fig. 6) with A1 0.8 times as long as height of head, 1.2 times as long as distance between inner orbits; A9 1.5 times as wide as long.

Mesosoma 1.5 times as long as wide, slightly less than 1.1 times as high as wide. Sides of pronotum reticulate-coriaceous (not longitudinally so) in anterior 0.7 of upper half, rest smooth. Mesoscutum sparsely and evenly setose, finely and uniformly, slightly longitudinal reticulate-coriaceous; notauli absent; hind margin medially with a narrow, sculptured, dark and flat prolongation to base of scutellum; scuto-scutellar grooves wide, each with a few long setae. Mesopleuron smooth. Scutellum (fig. 7) sculptured and setose almost as mesoscutum, ending in a vertical semitransparent lamella. Metapleuron smooth and bare in about anterior third, with sparse pilosity in slightly more than mid third, and with dense white pilosity along hind margin. Propodeal carinae high, semitransparent, fused.

Fore wing  $5/6$  as long as entire body, 2.4 times as long as wide, surpassing tip of metasoma by a length equal to the width of metasoma, almost clear, with fine and dense microtrichia; marginal cilia absent. Hind wing 6.5 times as long as wide; marginal cilia almost 0.5 the width of wing.

Metasoma (fig. 8) very slightly shorter than mesosoma (24.5:25), 0.9 times as wide as this, 1.4 times as wide as high. Narrow hind margin of T2 and T3-T6 almost entirely finely reticulate-coriaceous.

Affinities. This species runs to *S. mangiferae* AUSTIN, 1984 in BUHL's (2008b) key to Oriental *Synopeas*, but *S. mangiferae* has head and scutellum differently shaped than in *S. vikulundi*, e.g. scutellum without wide lamella, cf. AUSTIN (1984). Shape of scutellum approaching *S. coriaceus* BUHL, 2009 from Vietnam, but *S. coriaceus* has longer and more



Figs 5-8 *Synopeas vikulundi* sp. nov. female: 5 head, 6 antenna, 7 scutellum and propodeum, 8 metasoma.

sculptured metasoma than *S. vinklundi*, cf. also BUHL (2009b). *S. soppongense* BUHL, 2008 from Thailand has scuto-scutellar grooves with dense setae, scutellum posteriorly sloping and with only a very narrow lamella, and metasoma longer than in *S. vinklundi*, cf. BUHL (2008a).

Etymology. Named after one of the collectors, Bert VIKLUND at the Swedish Museum of Natural History.

***Synopeas westergaardi* sp. nov.** (figs 9-13)

Material examined. Holotype female: Malaysia, Sabah, Tawau, Maliau Basin, 900 m from Nepenthes Camp, heath forest, 1082 m.a.o. (04°43'09.3''N, 116°52'49.3''E), 8-15.xii.2007, Malaise trap, B. VIKLUND & N. JÖNSSON leg. (SMNH).

Diagnosis. Belongs to subgenus *Sactogaster* FÖRSTER, 1856; head twice as wide as long; female A3 hardly 0.4 times as long as A2, A4 0.75 times as long as A2; notauli only slightly incomplete; scutellar spine strong and upwards directed; female metasoma 1.3 times as long as rest of body: second sternite evenly and moderately recessed, obliquely sloping behind.

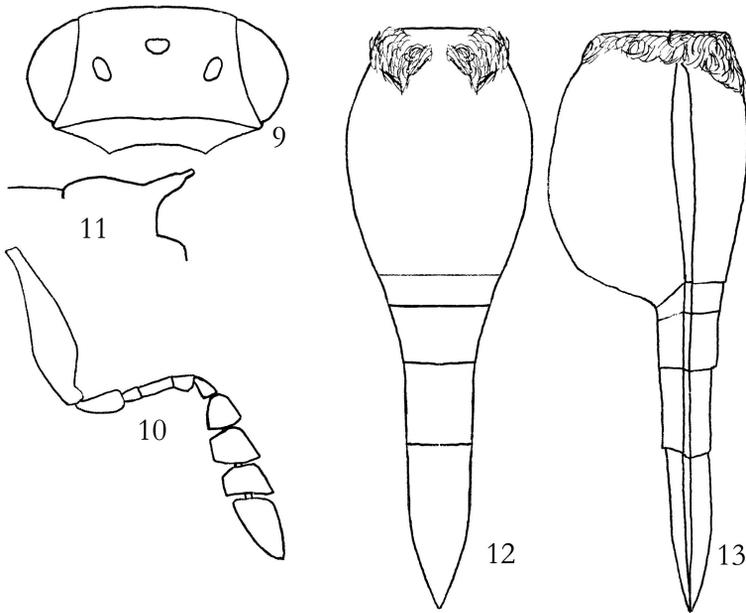
Description. Female. Body length 1.5 mm. Body black, A1 and legs excluding coxae and trochanters light reddish brown; extreme apex of hind femora, apical half of hind tibiae and apex of last segment of all tarsi darkened; A2-A10 dark brown.

Head from above (fig. 9) 2.0 times as wide as long, almost 1.1 times as wide as mesosoma, uniformly reticulate-coriaceous (not transversely so) with small meshes, with a weak impression from anterior ocellus to antennal insertions; hyperoccipital carina absent but head angled. OOL equal to longer diameter of lateral ocellus; LOL = 1.5 OOL. Eyes bare. Head in frontal view 1.25 times as wide as high. Antenna (fig. 10) with A1 0.8 times as long as height of head, longer than distance between inner orbits (15:14); A9 1.6 times as wide as long.

Mesosoma almost 1.4 times as long as wide (30:22), higher than wide (24:22). Sides of pronotum dull reticulate-coriaceous (not longitudinally so) in upper half, smooth below and along wide hind margin. Mesoscutum with scattered, inconspicuous setae, uniformly finely dull reticulate-coriaceous; notauli fine but missing only in about anterior 1/10, posteriorly meeting in a fine point touching base of scutellum; scuto-scutellar grooves each covered by about 10 long, golden setae. Mesopleuron smooth. Scutellum (fig. 11) densely setose, with a sharp, slightly upwards directed, strong dark spine without lamella below. Metapleuron smooth and bare in about anterior third, with sparse pilosity in slightly more than mid third (bare along upper margin), with dense pilosity in less than posterior third. Propodeal carinae high and short, very slightly transparent, fused, with smooth dorsal surface.

Fore wing reaching tip of metasoma, 0.7 times as long as entire body, 2.6 times as long as wide, slightly infuscated and with fine and dense microtrichia, without marginal cilia. Hind wing 5.7 times as long as wide; marginal cilia 0.3 width of wing.

Metasoma (figs 12-13) 1.3 times as long as head and mesosoma combined, hardly 0.8 times as wide as mesosoma, at its highest very slightly higher than wide (18:17). T2 smooth. T3 with dense micropunctuation in basal half, T4-T6 with dense micropunctuation except along extreme anterior and posterior ends, with a few inconspicuous setae.



Figs 9-13 *Synopeas westergaardi* sp. nov. female: 9 head, 10 antenna, 11 scutellum and propodeum, 12 metasoma from above. 13 metasoma in lateral view.

**Affinities.** Most similar to *S. nepalense* Mukerjee, 1981 but e.g. with A3-A4 shorter relative to A2, scutellar spine longer and more upwards directed, less elongate wings, shorter metasoma with sternite 2 less strongly and less abruptly recessed, and brighter coloured legs, cf. also MUKERJEE (1981). *S. ventricosum* BUHL, 1997 from the Bismarck archipelago and the Philippines has head less transverse than *S. westergaardi*, notauli much incomplete and metasoma distinctly shorter. On *S. westwoodi* BUHL, 2009 from Vietnam sternite 2 forms a distinct cornutus behind.

**Etymology.** Named after Danish artist, Kurt WESTERGAARD (Aarhus).

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## Literaturbesprechung

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Dieser umfangreiche und reichhaltig farbig illustrierte "field guide" stellt die 348 Libellenarten des westlichen Nordamerikas (USA, Kanada) vor. Diese Zweiteilung wurde gewählt, weil in dieser Ausführlichkeit die 453 nordamerikanischen Odonata-Arten den Rahmen eines einzelnen Bandes gesprengt hätten, außerdem ist ein zweiter Band über den Osten dieser Region geplant. Alle Arten werden anhand von Farbfotos (Lebendaufnahmen) vorgestellt, in vielen Fällen Männchen und Weibchen, zum Teil aus verschiedenen Regionen. Die Beschreibung hebt die wesentlichen Bestimmungsmerkmale hervor; unter dem Stichwort "Identification" wird eine Abgrenzung zu ähnlichen Arten dargestellt und es folgen Angaben zu Lebensweise, Habitat, Flugzeiten und Verbreitung (inkl. einer kleinen Verbreitungskarte). Zahlreiche Detailzeichnungen (Abdomenende, Prothorax, Mesostigmalplatten) sollten eine sichere Bestimmung der jeweiligen Arten ermöglichen. Die allgemeine Einführung ist kurz, beinhaltet aber alle wesentlichen Aspekte zur Biologie der Libellen, u.a. Lebensweise, Fortpflanzung, Larvalzeit und Metamorphose, Anatomie, Sammeln und Anlegen einer Sammlung, Gefährdung und Naturschutz sowie Libellen-Forschung.

Rundum eine gelungene und sehr empfehlenswerte Darstellung.

R. GERSTMEIER

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