

Understanding the tangled taxonomy of the genus *Pseudohercostomus* Stackelberg, 1931 (Insecta: Diptera: Dolichopodidae) with description of new species from Singapore and DR Congo

Patrick Grootaert^{1,2} & Isabella Van de Velde²

Abstract. The enigmatic genus *Pseudohercostomus* Stackelberg, 1931, considered incertae sedis, is characterised by a very wide metepimeron, and tarsomeres 1–4 of the mid and hind legs entirely set with anterodorsal transverse comb-like rows of bristles. The genus is reported for the first time from Singapore and *Pseudohercostomus singaporensis*, new species, is described from a swamp forest in Kranji Marshes. The species is also newly recorded from Cambodia. The new species is compared with *P. echinatus* Stackelberg, 1931, the type species of the genus that was described from Java, Indonesia. The Afrotropical species formerly reported as *P. echinatus* seems to belong to a different species and is described here as *P. congoensis*, new species. It is recorded from DR Congo and Mozambique. Hence, the presence of *P. echinatus* in the Afrotropical Region is considered doubtful. A key is provided for the five species actually considered to belong to *Pseudohercostomus*.

Key words. *Pseudohercostomus*, new species, Singapore, DR Congo

INTRODUCTION

The genus *Pseudohercostomus* Stackelberg, 1931 was originally described in the subfamily Dolichopodinae with *P. echinatus* Stackelberg, 1931, from Java, Indonesia as type species. In the revision of the subfamily Dolichopodinae, Brooks (2005) concluded that this genus does not belong in the Dolichopodinae in having the first antennal segment devoid of bristles and by having an encapsulated, non-pedunculated hypopygium with an entirely different morphology. Hence, the systematic position of *Pseudohercostomus* is still unclear and the genus is actually considered incertae sedis. A possible relationship with the New World genus *Keirosoma* Van Duzee, 1929 was hypothesised by Brooks (2005) at the suggestion of Dan Bickel.

Pseudohercostomus is not a common genus. There are currently three described species prior to this publication: Negrobov (1988) described a second species *P. allini* Negrobov, 1988 from Chile. Revision of this species is pending since the type material of the species actually seems to be lost (Capellari, in lit.). A third species, *P. sinensis* Yang & Grootaert, was described by Yang & Grootaert

(1999) from Yunnan in Oriental China, characterised by having very long cerci that are atypical for the genus. The genus *Pseudohercostomus* was reported from the Afrotropical Region by Dyte & Smith (1980), and Grichanov (2004) recorded *P. echinatus* from DR Congo. Finally, Brooks (2005) reported an undescribed species from the Australasian Region (Papua New Guinea).

The purpose of the present paper is firstly to describe the new species of *Pseudohercostomus* from Singapore. Secondly, the status of the Afrotropical specimens attributed to *P. echinatus* Stackelberg is clarified, and a new species is described from this material. Although a number of unique characters of the genus *Pseudohercostomus* are enumerated in the present study, it is not the aim to revise the status of the genus in the present paper. Finally, a key is provided for the hitherto known species.

MATERIAL AND METHODS

The present study is part of a long-term survey of the mangroves and forests on the island of Singapore as described in Grootaert (2018) and Yeo et al. (2020).

Deposition of material: Lee Kong Chian Natural History Museum of the National University of Singapore (ZRC), Royal Belgian Institute of Natural Sciences, Brussels (RBINS), Royal Museum for Central Africa, Tervuren (RMCA), Muséum National d'Histoire Naturelle, Paris (MNHN), Canadian National Collection (CNC), and California State Collection of Arthropods, Sacramento (CSCA).

Accepted by: Ang Yuchen

¹National Biodiversity Centre, NParks, Singapore; Lee Kong Chian Natural History Museum, National University of Singapore, Singapore

²Royal Belgian Institute of Natural Sciences, Vautierstreet 29, 1000 Brussels, Belgium; Email: pgrootaert@yahoo.co.uk

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The terminology and interpretation of Brooks (2005) is used to describe the male terminalia.

RESULTS

Family Dolichopodidae Latreille, 1809

Subfamily incertae sedis

Pseudohercostomus Stackelberg, 1931

Pseudohercostomus Stackelberg, 1931: 776. Type species: *Pseudohercostomus echinatus* Stackelberg by original designation.

Brooks, 2005: 857 (synonymy; discussion on systematic position).

Genus diagnosis. Robust, Dolichopodinae-like species but antennal scape lacking dorsal bristles and with a long inner apical projection. Metepimeron very wide. Anterior third of mesoscutum uniformly covered with short bristles. Acrostichals biserial or quadriserial. Hind coxa with a long, almost apical exterior bristle. Legs with strong bristles. Mid and hind femora wide and laterally flattened, with a very strong anterior preapical bristle. Mid and hind tarsomeres 1–4 anterodorsally covered with combs of short bristles. Male with only five external abdominal segments visible. Terminalia small, encapsulated in the apical segments of the abdomen. Hypopygium not stalked. Sperm pump bilobate (Brooks, 2005). Female terminalia with hemitergites (acanthophorites) with tergite 9+10 covered with several rows of spines (acanthae).

There are several additional characters that are particular and that seem to be typical for the genus such as the mid and hind tarsi tapering towards the tip, and the apical tarsomere of the mid and hind tarsi dorsally bearing a pair of claw-like apical bristles. The mid and hind tibiae are anterodorsally naked, lacking anterodorsal short bristling except for extreme base and apical fifth; simultaneously the rows of anterodorsal and posterodorsal bristles become very strong towards apex of the tibia.

The terminology of the appendages of the male terminalia is not clear though we follow Brooks (2005). The basoventral epandrial bristle close to the base of the hypandrium is very long. The apicoventral epandrial bristle is very short, inserted on a short papilla, probably representing the reduced apicoventral epandrial lobe. The ventral surstylus bears a variable number of ventral bristles. The tip of the dorsal surstylus bears a subapical short black spine inserted at the inside.

Pseudohercostomus singaporensis, new species

(Figs. 1–3, 6C)

Diagnosis. Medium-sized species (4.8–5.2 mm) with biserial acrostichals and five dorsocentrals. Scape yellow. Postpedicel a little shorter than high, not triangular, with a broadly rounded apex. Mid coxa yellow except for a black

anterodorsal stripe. Ventral surstylus with only three ventral bristles (at least eight long bristles in *P. echinatus*). Female with multiple rows of small spinules on the ovipositor, the spines are smaller than in *P. congoensis*, new species.

Type material. Holotype male: SINGAPORE: Kranji Marshes, KM04, 1°25'11.00"N 103°43'54.30"E, 2 April 2019, alt. 5 m asl, Malaise trap inside swamp forest (leg. P. Grootaert; ZRC_BDP0243029, ZRC).

Paratypes: SINGAPORE: 2 females, Kranji Marshes, KM04, 1°25'11.00"N 103°43'54.30"E, 2 April 2019, alt. 5 m asl, Malaise trap inside swamp forest (leg. P. Grootaert; ZRC_BDP0243028 (imaged) & ZRC_BDP0371544); 1 female, Kranji Marshes, KM04, 1°25'11.00"N 103°43'54.30"E, 29 May 2019, (Ma11375; leg. P. Grootaert; ZRC_BDP0371545, dissected. ZRC); 2 females, Kranji Marshes, KM03, 1°25'12.00"N 103°43'51.00"E, 10 April 2019 (Ma11304, leg. P. Grootaert; ZRC_BDP0371546 & ZRC_BDP0371547), alt. 5 m asl, Malaise trap along border of a swamp forest (ZRC); 1 male, Kranji Marshes, KM05, 1°25'10.15"N 103°43'53.53"E, 16 April 2019, (Ma11326; leg. P. Grootaert; ZRC_BDP0371548) alt 5 m asl., Malaise trap inside swamp forest (RBINS).

Other material examined. CAMBODIA: 1 male, Siem Reap, Preah Khan, 24 January–21 February 2006 (in coll. RBINS).

Description. Male (Figs. 1, 3). Length: body 5.3 mm; wing 4 mm.

Head. Frons metallic green, wide, parallel-sided hardly narrowing towards antennal sockets. Face wide, metallic green, microtrichose, parallel-sided, clypeus distinctly separated, about 1/3 length of face; brown at base while yellowish on apical half. All bristles and hairs on head black. A pair of strong anterior ocellar bristles, retroclinate, half as long as height of an eye. Vertical bristle on border with occiput, as long as ocellars. A pair of long postverticals, half as long as verticals. Occiput black in ground-colour with a row of rather long, uniserial, black postocular bristles. Postocular row ends below in a single long bristle, curved around the proboscis, 2× as long as the lower postoculars. Behind row of postoculars bristles a few long, black bristles.

Antenna yellowish brown. Scape yellow, lacking dorsal bristles, with a long inner, apical projection. Pedicel half as long as scape with an apical row of black bristles; a long dorsal apical bristle twice as long as pedicel, dorsally a second row of bristles. Ventral apical bristles longer than those at the side. Postpedicel yellow in ground-colour, but with a brownish tinge, especially near tip due to dense dark microtrichia. Postpedicel a little higher than long (0.16/0.18 mm) with a broadly rounded tip. Arista black, 2–2.5× as long as postpedicel set with fine diverging hairs. Proboscis yellowish brown with short dark hairs and a pair of long fine black hairs, 2× as long as pseudolabellae are broad. Palpus yellowish with short black bristles and a little stronger subapical bristle.



Fig. 1. *Pseudohercostomus singaporensis*, new species, male habitus. Paratype (Kranji Marshes, KM04 (ZRC_BDP0243029, ZRC)). Photo credit: Rene Ong. Abbreviation: metep: metepimeron.

Thorax blackish green in ground-colour. Mesoscutum on anterior quarter, densely and uniformly set with short black bristles, the dorsocentral bristles are not distinct in that area. A strong humeral bristle, a long posthumeral; in between dorsocentrals and notopleurals three shorter bristles that might represent sutural and postsutural bristles. Three notopleurals (middle notopleural on border with pleura, longest). A long supra-alar and a postalar. Five black dorsocentrals on posterior $\frac{2}{3}$ of mesoscutum. Anteriormost dorsocentral bristle short and fine, other four becoming longer towards scutellum. Apical dorsocentral longest and a little outside of the row. Acrostichals black, 10 biserial pairs reaching almost to scutellum. Scutellum distinctly rectangular with on each apical corner a very long scutellar bristle and a small bristle at the outside. Pleura black with a metallic green shine, microtrichose. A single short black upper propleural bristle and a very strong black lower propleural bristle inserted on border of fore coxa. Metepimeron very large, with a wide lateral lobe pushing sternite 1 aside (Fig. 1).

Legs yellow except for mid coxa having a brown streak anteriorly and a small black patch on the middle. Tarsi are yellow in ground-colour but look dark due to dense black bristling.

Fore leg. Coxa rather broad, anteriorly densely and uniformly set with short black bristles, at base a transverse row of slightly longer bristles; a row of strong apicals longer than coxa is wide; four strong bristles on posterior border, basal bristle pointing outward. Trochanter lacking bristles. Fore femur shorter and nearly half as wide as mid femur; fore femur anteriorly uniformly set with short bristles, a short preapical anterior as long as femur is wide at apex; a row of long, fine ventral bristles longest near base as long as femur is wide, bristles further decreasing in length towards apex while in apical quarter three bristles are pointing downward. A single fine preapical posteroventral bristle as long as femur is wide and a smaller preapical posterior.

Tibia a little shorter than femur. Apical fourth with five orange anteroventral crests being insertion sites of combs of fine short pale bristles. Five strong dorsals and three even stronger anterodorsal bristles being 3× as long as tibia is wide. Anterodorsally lacking short bristling except for extreme base and apical fifth.

First tarsomere as long as following four tarsomeres, ventrally densely set with bristles as long as tarsomere. Tarsomeres 2–4 with a produced ventral apex bearing a pair of bristles as long as tarsomere. Tarsomere 5 with a pair of distinct back claws and small pulvilli.

Length of femur, tibia, tarsomeres (in mm): 1.03 : 0.97 : 0.55 : 0.16 : 0.11 : 0.13 : 0.16.

Mid leg. Coxa broad, as a shield over the base of the femur, covering the small trochanter. Coxa anteriorly densely covered with black bristles, apical, dorsal, and ventral borders with long bristles (about ½ as long as coxa is high) and a strong bristle midway the dorsal border as long as coxa is high. Exterior bristle lacking.

Femur twice as wide as fore femur; laterally flattened, anteriorly and posteriorly densely covered with short bristles. A very strong anterior preapical bristle, preceded by a shorter one. Ventrally with a row of black bristles nearly as long as femur is wide; bristles are fine at base but becoming stronger towards apex of femur.

Tibia anterodorsally lacking short bristling except for extreme base and apical fifth; a row of anterodorsal and posterodorsal bristles becoming very strong towards apex of tibia (Fig. 1) strongest on apical third, 4× as long as tibia as wide. A strong ventral bristle on apical third (4× as long as tibia is wide). Apical crown with very strong bristles (ventral and dorsal bristle 2× as long as tibia is wide). Tarsomeres 1–4 with anterodorsal rows of combs of short black bristles: from tarsomere 1 to 4 respectively: 11, 8, 6, 4–5 rows. Bristling on tarsomere 5 dense and not organised in rows. Tip of tarsomeres 1–4 ventrally produced and bearing a pair of strong bristles. Length of femur, tibia, tarsomeres (in mm): 1.58 : 1.74 : 0.87 : 0.51 : 0.41 : 0.32 : 0.19.

Hind leg. Coxa with a fine exterior bristle inserted near apex of coxa, nearly as long as coxa is high, with a minute bristle at its base.

Femur a little wider than mid femur, laterally flattened, anteriorly and posteriorly densely covered with short bristles. Dorsally with a dense row of long bristles being half as long as femur is wide. A strong anterior preapical bristle, preceded by a short one. Ventrally with a row of black bristles nearly as long as femur is wide, bristles are fine at base but becoming stronger toward apex of femur.

Tibia comparable to mid tibia: anterodorsally lacking short bristling except for extreme base and apical fifth; a row of anterodorsal and posterodorsal bristles becoming very strong towards apex of tibia, with a ventral row of bristles,

about as long as tibia is wide in basal third becoming very strong in middle.

Tarsomeres 1–4 with anterodorsal rows of combs of short black bristles: from tarsomere 1 to 4 respectively: 12, 11, 10, 9–10 rows. Bristling on tarsomere 5 dense, not organised in rows. Tip of tarsomeres 1–4 are ventrally produced and bearing a pair of strong bristles. Apical tarsomere with a pair of black claws a little longer than tarsomere is wide and a pair of dorsal strong bristles as long as claws (giving the impression that there are four claws). A pair of short pulvilli with an empodium.

Length of femur, tibia, tarsomeres (in mm): 1.9 : 1.82 : 0.71 : 0.60 : 0.4 : 0.22.

Wing greyish tinged with black veins. Base of costa widened and densely set with small bristles. Vein R_{4+5} and M only weakly diverging towards wing tip. Posterior crossvein nearly 2× as long as apical section of Cu. Squama white with multiple rows of black bristles and a row of long black marginal bristles. Haltere white.

Abdomen with five externally visible segments. Tergite 1 narrow with a row of bristles on basal border, longest at sides, two rows of shorter bristles on disk and a row of equally long marginal bristles. Tergite 2–5 densely set with short bristles on disk (about five rows) in addition with a row of marginal bristles twice as long as those on disk. Each of tergites 2–5 has four longer and stronger marginals as long as tergite is long. Sternum with only three visible sternites. Sternite 1 lacking and sternite 5 hidden under sternite 4. All sternites densely set with short back bristles.

Male terminalia small and hidden (Fig. 1). Cerci yellow with pale hairs while surstyli are shiny brown. Tip of hypandrium with a small downturned point (Fig. 3H). Basoventral epandrial bristle long, close to base of hypandrium (Fig. 3A, B, H). Apicoventral epandrial bristle short, inserted on a short papilla, probably representing the reduced apicoventral epandrial lobe. Ventral surstylus bears a thickened apical bristle pointing inward (Fig. 3D, H), a longer preapical and two minute bristles. Tip of dorsal surstylus bears a subapical short black spine inserted at the inside in a shallow furrow (Fig. 3E, F). A long internal lobe is present on the dorsal surstylus and reaches slightly beyond tip of dorsal surstylus (Fig. 3D, G).

Female (Figs. 2, 6C). Length: body: 4.8 mm; wing: 4.16 mm. Female in most characters similar to male but the ventral bristles on hind femur seem to be shorter. Acanthophore dorsally covered by several rows of strong acanthae (spinules). Only a single bristle present behind the rows of acanthae (Fig. 6C).

Etymology. The new species is named after the type locality, Singapore.

Comments. Being more or less sympatric, the new species should be compared with *P. echinatus* Stackelberg that



Fig. 2. *Pseudohercostomus singaporensis*, new species, female habitus. Paratype (Kranji Marshes, KM04 (ZRC_BDP0243028, ZRC)). Photo credit: Rene Ong. Abbreviation: metep: metepimeron.

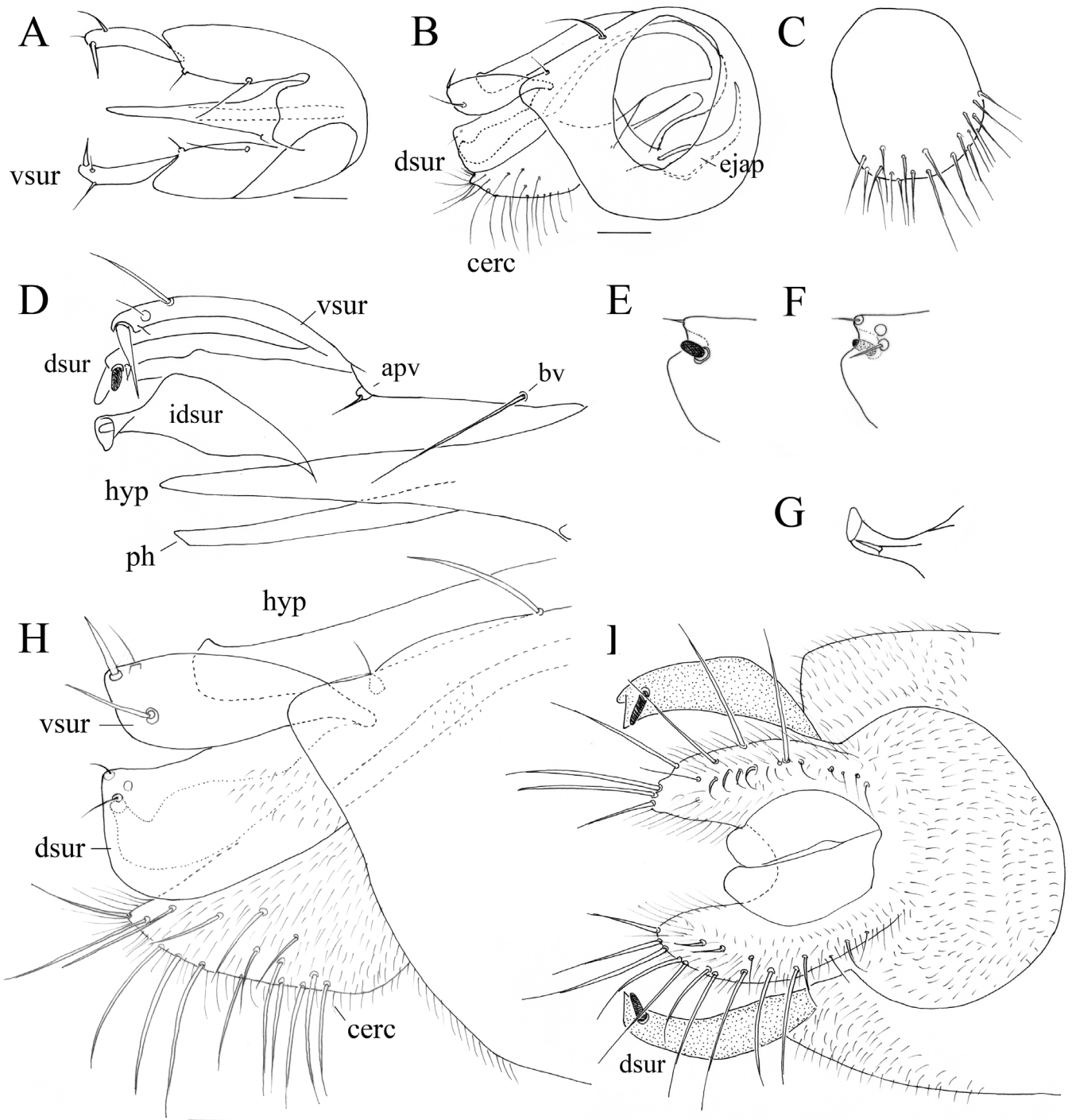


Fig. 3. *Pseudohercostomus singaporensis*, new species, male terminalia. Holotype (Kranji Marshes, KM05). A, ventral view hypopygium; B, lateral view hypopygium; C, eighth sternite; D, ventral view of epandrial lobe, ventral surstylus and dorsal surstylus; E, tip of dorsal surstylus from inside; F, tip of dorsal surstyli from outside; G, tip of inner lobe of dorsal surstylus; H, tip of hypopygium lateral; I, dorsal view of cerci and dorsal surstyli. Abbreviations: apv: apicoventral epandrial bristle; bv: basoventral epandrial bristle; cerc: cercus; dsur: dorsal surstylus; ejap: ejaculatory apodeme; hyp: hypandrium; idsur: inner lobe of dorsal surstylus; vsur: ventral surstylus. Scale bar = 0.1 mm.

was originally described from Lambogan (Java) and later reported from Bogor (Parent, 1934) and Jakarta (Hollis, 1964). All these sites are on Java, Indonesia. The main difference between *P. singaporensis*, new species, and *P. echinatus* is the presence of biserial acrostichal bristles on the mesoscutum which are instead quadriserial in *P. echinatus*. Stackelberg (1931) also mentions that the postpedicel is triangular (dreieckig), hardly longer than high with a distinctly pubescent arista near the middle of the dorsal border. The

postpedicel in the new species is a little shorter than high, not triangular, but with a rounded tip. Stackelberg further mentions that the male has only four distinct dorsocentral bristles. In the new species there are five dorsocentrals with the most basal dorsocentral short and fine, while the following dorsocentrals are much stronger. The male terminalia are also slightly different in the two species: the ventral surstylus bears only three ventral bristles in the new species while there are at least eight long bristles in *P. echinatus*.



Fig. 4. Habitat of *Pseudohercostomus singaporensis*, new species, in Kranji Marshes. A, site KM05 inside the swamp forest in the beginning of the rainy season. B, site KM03 at the border of the swamp forest at the end of the rainy season. (Photo credit: P. Grootaert)

Distribution. Singapore, Cambodia.

Habitat. The new species was found in several sites in a swamp forest in Kranji Marshes, Singapore (Fig. 4). These marshes were formerly part of a mangrove ecosystem that was dammed in the seventies and turned into a freshwater swamp with lakes, swamp forest, and secondary forest (Grootaert, 2020).

In general, it seems that the genus *Pseudohercostomus* is linked to freshwater habitats. The type species of the genus, *P. echinatus* was originally found as a puparium between the roots of water hyacinth (*Eichhornia*), and the male that emerged from it was described by Stackelberg (1931). The association with the water hyacinth is not yet clear. Anyway, water hyacinth was present in the lakes of Kranji marshes but not inside the swamp forest itself where the new species was found. Water hyacinth was also present in the site of Preah Khan in Cambodia very close to where the Malaise trap was installed in which we also collected *P. singaporensis*, new species. The Afrotropical species *P. congoensis*, new species, was collected on the borders of Lake Edward and its tributaries. We do not know if there was a link with water hyacinth in that case. What is intriguing is the morphology of the ovipositor that bears multiple rows of strong spinules (acanthae). This might indicate that the ovipositor is used to scrape a substrate during egg laying and is not simply used for moving a granulated substrate.

***Pseudohercostomus congoensis*, new species**
(Figs. 5, 6A, B)

Paracleius echinatus (Stackelberg, 1931) sensu Grichanov, 2004: 102, diagnosis, fig. 67 (male terminalia lateral).

Pseudohercostomus echinatus in Grichanov & Brooks, 2017: fig. 148 (female terminalia dorsal).

Type material. Holotype male: DR CONGO: S.L. Edouard: r. Rwindi (1000 m), 16 February 1936, L. Lippens PARC NAT. ALBERT; det. P. Vanschuytbroeck, 1951: *Pelastoneurus diversifemur* Parent; det. I. Grichanov, 2000 as *Paracleius echinatus* (Stackelberg); det. I. Grichanov as *Pseudohercostomus echinatus* Stackelberg. Male terminalia embedded in epoxy resin on microfilm on pin. (Coll. RMCA).

Paratypes: DR CONGO: 1 female: Embouch. Rutshuru L. Edouard S. 18 January 1936, Dr. H. Damas PARC NAT. ALBERT, det. P. Vanschuytbroeck, 1951: *Hercostomus longipilus*; det. I. Grichanov, 2000 as *Pseudohercostomus echinatus* Stackelberg; det. S.E. Brooks, 2000 as *Pseudohercostomus echinatus*. Female ovipositor in glycerine attached in microvial on pin. (prepared by S. Brooks and illustrated; in coll. RBINS); 1 female: Congo belge: P.N.U. Mabwe (lac Upemba) (585 m.), 4 September 1947, Mis. G.F. de Witte, 734a det. P. Vanschuytbroeck, 1952: *Hercostomus rhodesiensis* Parent; det. I. Grichanov as *Pseudohercostomus echinatus* Stackelberg; det. S.E. Brooks, 2000 as *Pseudohercostomus echinatus*. Female ovipositor in glycerine attached in microvial on pin (in coll. RBINS).

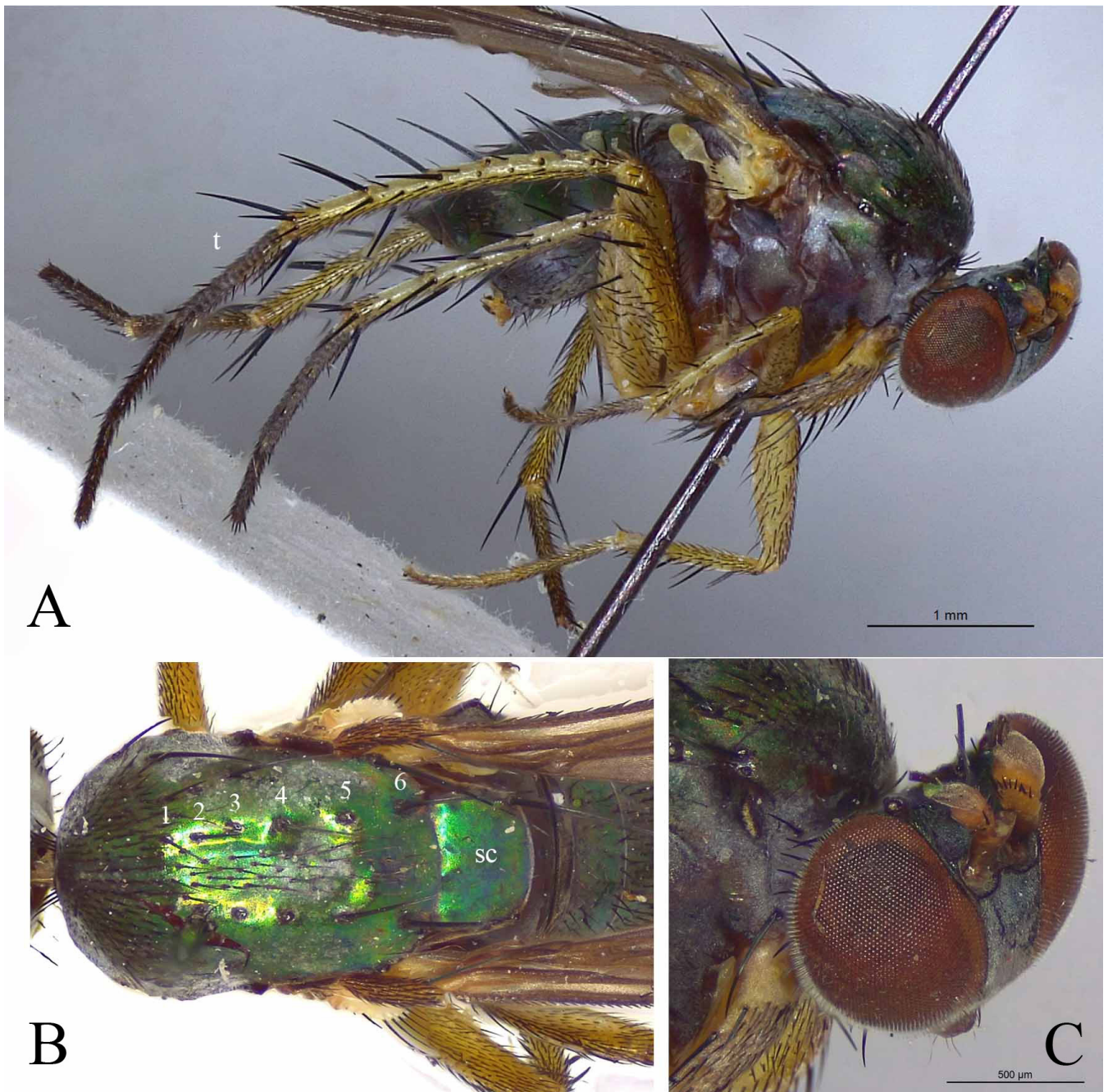


Fig. 5. *Pseudohercostomus congoensis*, new species, male. Holotype [Lake Edward, Rwindi r., Albert National Park (Virunga National Park), DR Congo]. A, habitus lateral; B, mesoscutum dorsal; C, head. (RMCA, photo credit: I. Van de Velde)

Other material examined. MOZAMBIQUE: Sofala, Gorongosa Park, small lake, 18°56'39"S 34°26'35"E, 30 m, 19–30 April 2015, M. Hauser, A. Rung; 3 males (CNC1107737, CNC1107738, CNC1107774), 4 females (CNC1107739, CNC1107741, CNC1107742, CNC1107743) in Canadian National Collection; 1 male (CNC1107740), 2 females (CNC1107775, CNC1107776) in California State Collection of Arthropods, Sacramento (CSCA). All det. S. Brooks.

Description. Male (Figs. 5, 6A). Length body: 4 mm; wing: 4.64 mm.

Head. Frons, face, and occiput grey dusted (Fig. 5C). Face entirely metallic green in ground-colour and narrowing towards clypeus.

Antenna. Scape brown, pedicel yellowish, postpedicel yellow on basal 1/3, apical 2/3 brownish yellow. Arista black. Pedicel with an apical crown of black bristles, dorsally with an extra row behind the apical row. A strong dorsal bristle 2× as long as pedicel. Postpedicel triangular (pointed) a little longer than high: 0.22 mm/0.17 mm.

Thorax. Scutum metallic green in ground-colour, finely grey dusted. Pleura brownish, finely grey dusted. Acrostichals

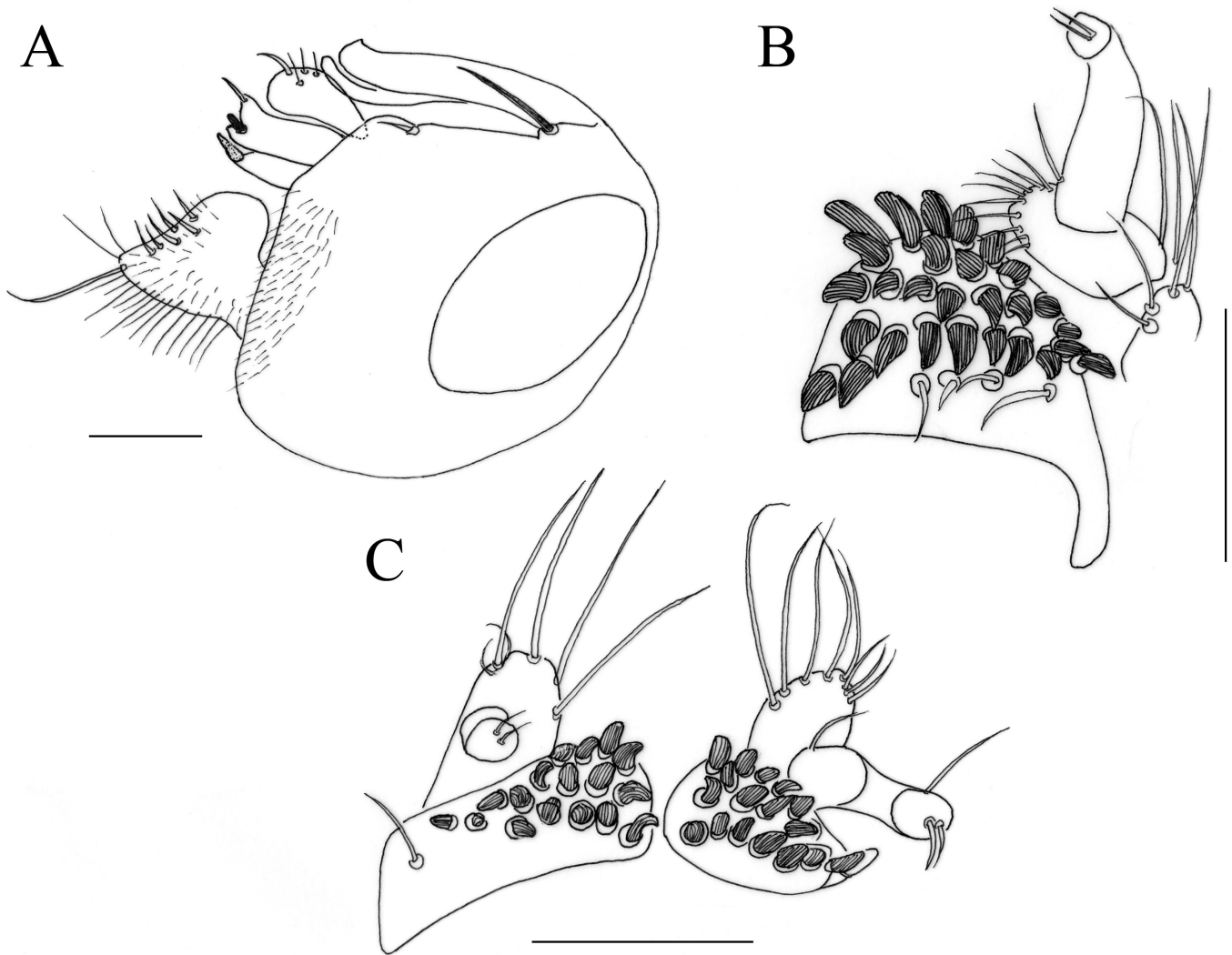


Fig. 6. *Pseudohercostomus*. A, *P. congoensis*, new species, holotype male terminalia lateral view; B, *P. congonesis*, new species, female left acanthophore and cercus dorsal view, paratype; C, *P. singaporensis*, new species, acanthophore dorsal view, paratype (Kranji Marshes). Scale bars = 0.1 mm.

black, quadriserial, and the rows almost reaching to the base of the scutellum. Six dorsocentral bristles, anterior 2–3 rather short, remaining dorsocentrals increasing in length towards scutellum. Scutellum rectangular, longer than in *P. singaporensis*, new species. Metepimeron large, brownish black in ground colour and finely grey dusted, tough subshiny. Mid coxa anteriorly with a blackish stripe, dorsal part brown (Fig. 5B).

Legs yellow, except for mid coxa having a black stripe on anterior margin with dorsal side of coxa, while latter area is brownish. Bristling of legs (Fig. 5A) as in *P. singaporensis*, new species.

Mid coxa anteriorly with a blackish stripe, dorsal part brown (Fig. 5B).

Wing brownish grey tinged with dark brown veins. Squama white, with a marginal row of long bristles, black in anterior half, white and shorter in posterior half. Anteriorly with a single black bristle behind the marginal bristles. Haltere white.

Abdomen. Tergites metallic green black in ground colour, with a very fine dusting. Bristling as in *P. singaporensis*, new species.

Male terminalia (Fig. 6A). A strong black basoventral epandrial bristle near base of hypandrium. A short apicoventral bristle on a short papilla. Ventral surstylus with a slightly thickened apical bristle and some short ventral bristles. Dorsal surstylus with an apical bristle and a dark subapical spine. Inner lobe of dorsal surstylus long, with a brown apical spine-like protuberance.

Female (Fig. 6B). Length: body: 4–5 mm; wing: 4.6–5 mm. Resembling male in most characters like the bristling on the legs. Face parallel-sided and broader than in male.

Female terminalia (Fig. 6B). Ovipositor dorsally with at least four rows of very strong black dorsal spines. Row of four strong pale bristles near base of acanthophorite.

Etymology. The new species is named after the type locality, DR Congo.

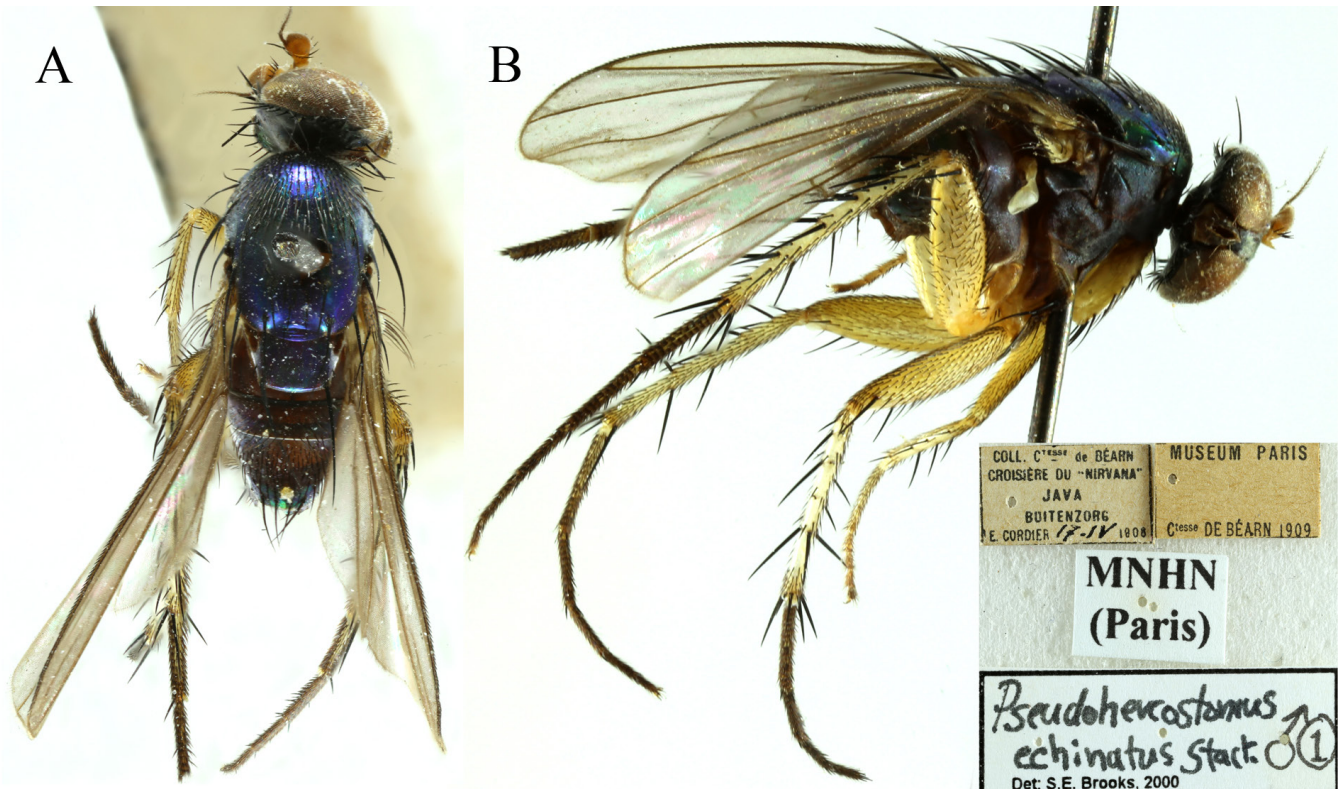


Fig. 7. *Pseudohercostomus echinatus* Stackelberg, male habitus. Buitenzorg (Bogor), Java, Indonesia, det. E. Parent (1934), det. Brooks (2005). A, dorsal view; B, lateral view. (MNHN, Photo credit: E. Delfosse)

Comments. *Pseudohercostomus congoensis*, new species, closely resembles *P. echinatus* and seems to form a species complex with the latter. It differs in having a brown antennal scape, whereas the scape is yellow in *P. echinatus*. The mesoscutum is metallic green, while it is metallic blue with green reflections in *P. echinatus*. There are six dorsocentral bristles (anterior most short), while there are only four dorsocentrals in *P. echinatus*. The marginal bristles on the squama are black in the anterior half and white in the posterior half. In *P. echinatus* all marginal bristles are black and in addition, there are several long black bristles present behind the marginal bristles like in *P. singaporensis*, new species. The male terminalia in *P. congoensis*, new species, are different in having fewer and shorter dorsal bristles on the ventral surstylus, a different shape of the dorsal surstylus, and having a pointed brown tip of the inner lobe of the dorsal surstylus. In *P. echinatus*, as is illustrated by Brooks (2005: fig. 38), the ventral surstylus bears about eight longer ventral bristles and the inner lobe of the dorsal surstylus is shorter.

Pseudohercostomus congoensis, new species, is distinctly different from *P. singaporensis*, new species, in having quadriserial acrostichals and a postpedicel being triangular and slightly longer than high. In addition, there are six dorsocentral bristles (Fig. 5B) while in *P. singaporensis* there are only 4–5 dorsocentrals. In contrast to *P. singaporensis*, *P. congoensis* has the face entirely metallic green in ground-colour while in *P. singaporensis* the clypeus is mainly yellowish in ground-colour. The dorsal spines (acanthae) on the ovipositor are much smaller in *P. singaporensis*, new species (Fig. 6C) than in *P. congoensis*, new species (Fig. 6B).

***Pseudohercostomus echinatus* Stackelberg, 1931**
(Fig. 7)

Stackelberg, 1931: 776, description male. Type locality: Ramu Lamongan, E Java, Indonesia (in coll. ZI, St. Petersburg).
Parent, 1934: 303, Buitenzorg, Java, Indonesia (in coll. MNHN, Paris).
Hollis, 1964: 255, Batavia, Java, Indonesia (in coll. Naturalis, Leiden).
Brooks, 2005: 134, discussion systematic position.

Material examined. Male, Buitenzorg, Java, 17 April 1908, Le Cordier; Coll. Comtesse de Béarn, Croisière du Nirvana (in coll. MNHN, Paris).

The type material has been located in the collections of the Zoological Institute in St. Petersburg, but was not available at the time of the present research. The present study is based on the sympatric material seen by Parent (1934) that was also studied and illustrated by Brooks (2005: fig. 38A–D).

Diagnosis. A species with quadriserial acrostichal bristles. Scape yellow. Postpedicel triangular, a little longer than high. Mesoscutum metallic blue in ground-colour with a green hue depending on the angle of view. Only four (sometimes five) dorsocentrals present. The male terminalia are represented in detail by Brooks (2005: fig. 38).

Distribution. Java, Indonesia.

Comments. For the differences with *P. congoensis*, new species, and *P. singaporensis*, new species, we refer to the

comments stated in the respective species descriptions of these species and to the species key given hereunder.

Pseudohercostomus echinatus was reported from the Afrotropical Region (Grichanov, 2004) and consequently in catalogues (Yang et al., 2006), but these records concern a similar but different species, *P. congoensis*, new species, described here above. Hence, *P. echinatus* does not seem to have a wide circumtropical distribution, but is only confirmed from Java, Indonesia, in the Oriental Region.

Key to male *Pseudohercostomus*

1. Male with cerci twice as long as epandrium (Oriental Region) *P. sinensis* Yang & Grootaert
– Male with cerci shorter than epandrium 2
2. Postpedicel apically rounded 3
– Postpedicel triangular (tip pointed) 4
3. Propleural bristle white; fore coxa with white bristles; antenna black (Neotropical Region, Chile) *P. allini* Negrobov
– Propleural bristle black; fore coxa with black bristles; antennae yellowish-brown (Oriental Region)
..... *P. singaporensis*, new species
4. Scape yellow; mesoscutum metallic blue with green reflections; 4–5 dorsocentral bristles bristling on squama entirely black (Oriental Region) *P. echinatus* Stackelberg
– Scape brown; mesoscutum metallic green only; 6 dorsocentral bristles (anterior most short); bristling on squama partly white (Afrotropical Region) *P. congoensis*, new species

Pseudohercostomus allini Negrobov, 1988

Negrobov, 1988: 79 (figs. 1, 2: hypopygium).

The type material of this species could not be located and hence a number of key characters of the genus *Pseudohercostomus* could not be verified. The presence of uniformly distributed small bristles on the anterior part of the mesoscutum, a wide metepimeron, and the rows of anterodorsal combs on mid and hind tarsi remain unknown. The species might even not be congeneric with *Pseudohercostomus*.

Pseudohercostomus sinensis Yang & Grootaert, 1999

Yang & Grootaert, 1999: 262 (figs. 25–27: 25: wing; 26: antenna; 27: male terminalia).

The collections at China Agricultural University in Beijing were recently relocated and the type specimen was not found during the present study, so the presence of uniformly set small bristles on the anterior part of the mesoscutum, a wide metepimeron, and rows of anterodorsal combs on mid and hind tarsi could not be confirmed. The species might not be congeneric with *Pseudohercostomus*. This is suggested by the parallel-running vein R_{4+5} and M_1 in *P. sinensis*, while in other species such as *P. singaporensis*, new species, *P. echinatus*, and *P. congoensis*, new species, veins R_{4+5} and M_1 are weakly diverging.

GENERAL DISCUSSION

As pointed out by Brooks (2005), the genus *Keirosoma* Van Duzee, 1929 is quite similar to *Pseudohercostomus* Stackelberg, 1931. The type species *K. albicinctum* Van Duzee, 1929, described from Panama with additional material from Florida, has the eyes touching near the middle of the face while in the *Pseudohercostomus* we studied, the face is broad and parallel-sided. Many key characters of the genus *Pseudohercostomus* are not mentioned in the description by Van Duzee such as the anterior part of the mesoscutum that is covered with uniformly distributed small bristles, a character that is seen also in *Physopyga* Grootaert & Meuffels, 1990. Further, *Keirosoma* shares the glabrous area between the anterodorsal and posterodorsal rows of bristles of mid and hind tibia seen in both *Pseudohercostomus* and *Physopyga*. A review of the genus *Keirosoma* Van Duzee, 1929 will be necessary to determine whether *Pseudohercostomus* Stackelberg, 1931 is related.

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