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Colilodion schulzi sp. n. (Coleoptera: Staphylinidae: Pselaphinae) from Palawan, the Philippines, with habitus photographs and a revised key to all *Colilodion* species

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Abstract: *Colilodion schulzi* sp. n. from Palawan, the Philippines, is described based on a female specimen. The new species possesses three-segmented antennae with conspicuously broadened apical antennomeres. Habitus images of the new and all previously described *Colilodion* species are provided. A revised key to the *Colilodion* species is included.

Keywords: Taxonomy - Clavigeritae - Colilodionini - new species - Oriental region.

INTRODUCTION

The genus *Colilodion* Besuchet, 1991 is the only member of the tribe Colilodionini. Currently seven species are known from southern China, central Vietnam, West and East Malaysia, and western Sumatra (Besuchet, 1991; Löbl, 1994, 1998; Nomura & Sugaya, 2007). As discussed in Löbl (1994), the group exhibits characters states found both in Clavigeritae (e.g. antennae three- to four-segmented, with enlarged apical antennomeres; strongly reduced maxillary palpi; fused abdominal tergites and fully-developed sternite III) and Pselaphitae (e.g. third tarsomeres longer than second; presence of free sternite IX in male), but none of these characters can be used as conclusive evidence to determine the phylogenetic position of *Colilodion*. Here we agree with Löbl, tentatively accepting the placement of *Colilodion* in Clavigeritae by Besuchet (1991), pending new evidence becomes available.

Recently we recognized an additional *Colilodion* species in the collection of the Muséum d'histoire naturelle de la Ville de Genève, represented by a single female specimen collected by Andreas Schulz (Leverkusen, Germany) on Palawan Island (Philippines). Unlike previously known congeners, it is distinctive in having the third antennomeres strongly broadened throughout their entire length, and a stout general habitus. In addition to a description of this new species, we also provide colorful habitus images of all eight species of this rare genus, and an updated identification key.

MATERIAL AND METHODS

All material treated in the present paper is deposited in the Muséum d'histoire naturelle de la Ville de Genève (MHNG).

The habitus image of each species was based on the respective type material, except for *Colilodion inopinatus*, where we chose an identified specimen in better condition. The habitus images were taken using a Canon 7D camera in conjunction with a Canon MP-E 65mm f/2.8 1-5X Macro Lens and a Canon MT-24EX Macro Twin Lite Flash. Images of the morphological details were made using a Canon G9 camera mounted on an Olympus CX31 microscope. Zerene Stacker (version 1.04) was used for image stacking. All images were modified and grouped in Adobe Photoshop CS5 Extended (version 12.0).

The label data of the material are quoted verbatim. A slash (/) is used for separation of different labels. The following abbreviations are applied: AL – length of the abdomen along the midline; AW – maximum width of the abdomen; EL – length of the elytra along the sutural line; EW – maximum width of the elytra; HL – length of the head from the anterior clypeal margin to the occipital constriction; HW – width of the head across eyes; PL – length of the pronotum along the midline; PW – maximum width of the pronotum. Length of the body is a combination of HL + PL + EL + AL.

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TAXONOMY

Colilodion schulzi new species

Figs 1A, 3

Holotype: ♀, labeled 'PAL-09/08: PHILIPPINES: Palawan, Puerto Princesa Region, Sabang, Mt. Bloomfield, 10°11'37''N, 118°52'21''E, 500-700 m, primary forest, 10.XII.2009, leg. A. Schulz. PAL-09/08 (printed) / MHNG ENTO 00008847 (accession number) (printed) / Holotype ♀, *Colilodion schulzi* sp. n., det. Yin & Cuccodoro, 2015 (hand written)'.

Differential diagnosis: *Colilodion schulzi* shares with *C. concinnus* Besuchet and *C. inopinatus* Besuchet the broadened antennomeres III with the impressed dorsal surface indicated by divided smooth fields. It can be readily separated from these two species by the antennomeres III being strongly broadened throughout their entire length, with a slightly narrowed base, a stouter pronotum with coarser discal punctation, and a relatively much broader elytral base. Both *C. concinnus* and *C. inopinatus* have the antennomeres III much narrower at the base than at the apex, their pronota are less stout, the discal punctation is finer, and the elytral base is relatively much narrower.

Description: Length 2.37 mm. Body and appendages reddish brown (Fig. 1A). Pubescence of body short and recumbent.

Head longer than wide, HL 0.43 mm, HW 0.34 mm. Vertex (Fig. 3A) strongly raised dorsally, narrowed apically, surface of raised area densely and roughly punctate, lateral area (Fig. 3B) vertical, very finely punctate, dorsal margin convex in lateral view, situated slightly below level of pronotum, bearing thick, posteriorly-oriented dorsolateral and dorsomedian trichomes; posterior edge of vertex narrowed to become keel-like below, bearing two fairly long, diverging trichomes oriented posteriorly. Frons sparsely but roughly punctate, pubescence fine. Each eye composed of about 22 facets, unevenly divided by thick lateral ocular carina (Fig. 3B), dorsal part with about 20 facets, ventral part with 2 facets. Gular ridge (Fig. 3C) broad, thickened at middle, anterolateral surface sparsely and roughly punctate, with short pubescence. Occipital constriction impunctate, shiny, vertical at ventral margin.

Antennae (Fig. 3D) three-segmented; antennomere I visible in dorsal view, slightly transverse, roughly punctate on ventral surface, with short, thick setae; antennomere II distinctly transverse, wider and shorter than antennomere I, surface roughly punctate, with short setae; antennomere III 0.92 mm long, 0.39 mm wide, strongly broadened throughout length, impressed dorsal surface indicated by divided smooth fields, sparsely covered with short setae; setae of anterior margin longer and thicker; apical sensilla with raised margin, with two short setae.

Pronotum trapezoidal, PL 0.63 mm, PW 0.53 mm (at base), gradually narrowed apically; apical portion (Fig. 3A) broadly notched, notch deeper at middle; median groove evenly narrow, sharply delimited, extending posteriorly near pronotal base and anteriorly to posterior edge of apical notch; sub-anterolateral areas broadly concave; dorsum extremely coarsely punctate, distinctly margined laterally at anterior third, sub-basal area smooth; lateral surface (Fig. 3B) extremely finely punctate and with fine setae; posterolateral angles distinct, posterior margin smoothly sinuate; anterolateral edges slightly oblique, each bearing conspicuous trichome forming rim oriented dorso-anteriorly and pointed dorsally; dorsal anterior edge with shorter and thinner trichomes oriented anteriorly and curved dorsally near tip.

Elytra (Fig. 3E) wider than long, EL 0.73 mm, EW 0.95 mm; elytral disc flattened, slightly raised, sparsely covered with coarse punctation, densely microsculptured, with short, recumbent setae; each elytron with seven longitudinal striae, sutural and pair of inner striae complete, pair of central striae with inner stria extending from base to half of elytral length, and outer one much fainter, pair of outer striae with inner stria complete, outer one extending from basal third to posterior margin; anterolateral margin round, area nearby finely punctate and lacking microsculpture, punctation and setae of lateral area similar to those of disc, interval between punctures smooth, lacking microsculpture; posterior area with row of sparse, long, and thick setae, with bunch of thick setae at posterolateral margin.

Prosternum (Fig. 3C) with triangular process rising from anterior margin, and large vertical process rising from posterior margin; median area with several setae, lacking obvious trichome, lateral surface of process distinctly microsculptured. Anterior mesoventral edge (Fig. 3F) slightly raised, pointed at middle, lateral areas with big and shallow punctures, inner sides with microsculpture. Metaventrite (Fig. 3F) raised at middle, anterior half and lateral area of basal half with shallow, large punctures and short setae.

Abdomen transverse, AL 0.58 mm, AW 0.89 mm; first visible tergite (Fig. 3G) broadly and deeply impressed between elongate basolateral ridges, with dense setae along posterior margin of impression; disc finely punctate and lacking microsculpture at basal half, with shallow, large punctures and microsculptured interval at apical half, pubescence mostly fine, with two rows of thick, erect setae at apical portion, with truncate apex; paratergites well-demarcated, with few long, erect setae; second tergite with row of long, erect apical setae, with distinct lateral tubercles. First visible sternite (morphologically sternite III) (Fig. 3H) with coarse punctation and dense microsculpture, setae fine; second sternite long, punctation and microsculpture much more denser at middle than at lateral portion; following sternites similarly microsculptured and with short setae.

Tibiae (Figs 3I-K) distinctly sculptured, narrowed at basal third, apical two-thirds abruptly thickened, bearing conspicuous rows of erect setae on dorsal side.

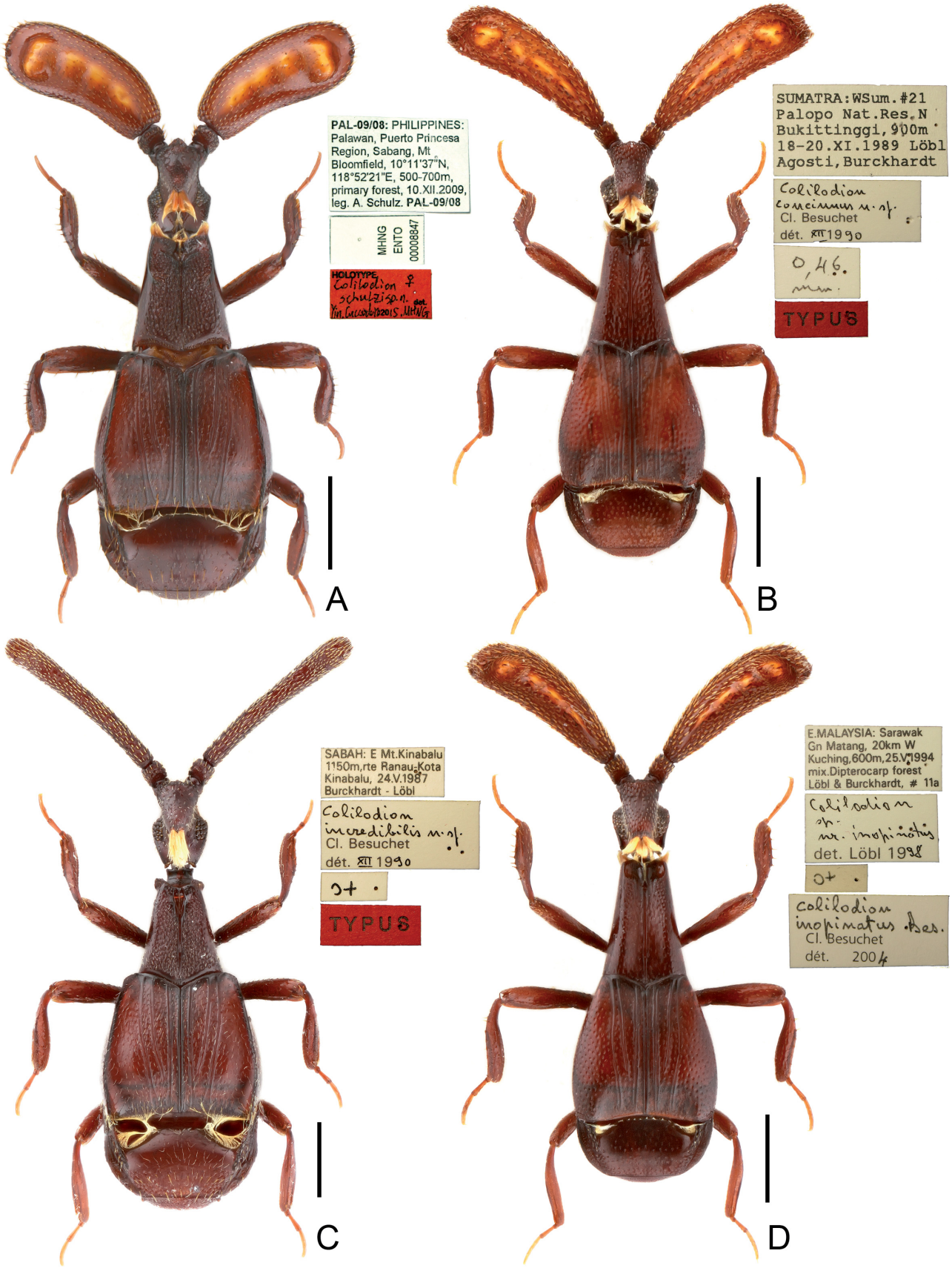

Fig. 1. Dorsal habitus of *Colilodion* species. (A) *C. schulzi*. (B) *C. concinnus*. (C) *C. incredibilis*. (D) *C. inopinatus*. Scales: 0.5 mm.

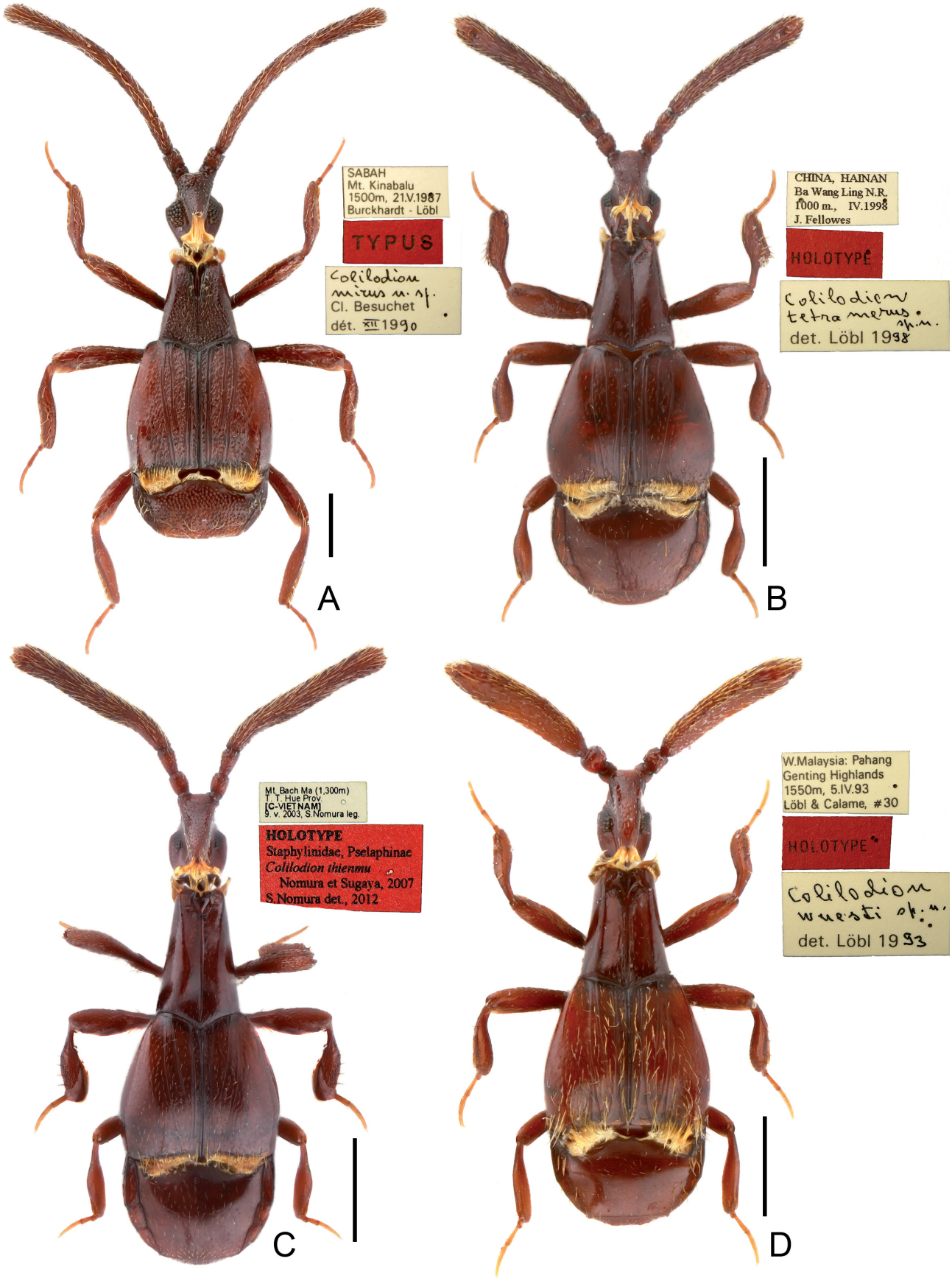

Fig. 2. Dorsal habitus of *Colilodion* species. (A) *C. mirus*. (B) *C. tetramerus*. (C) *C. thienmu*. (D) *C. wuesti*. Scales: 0.5 mm.

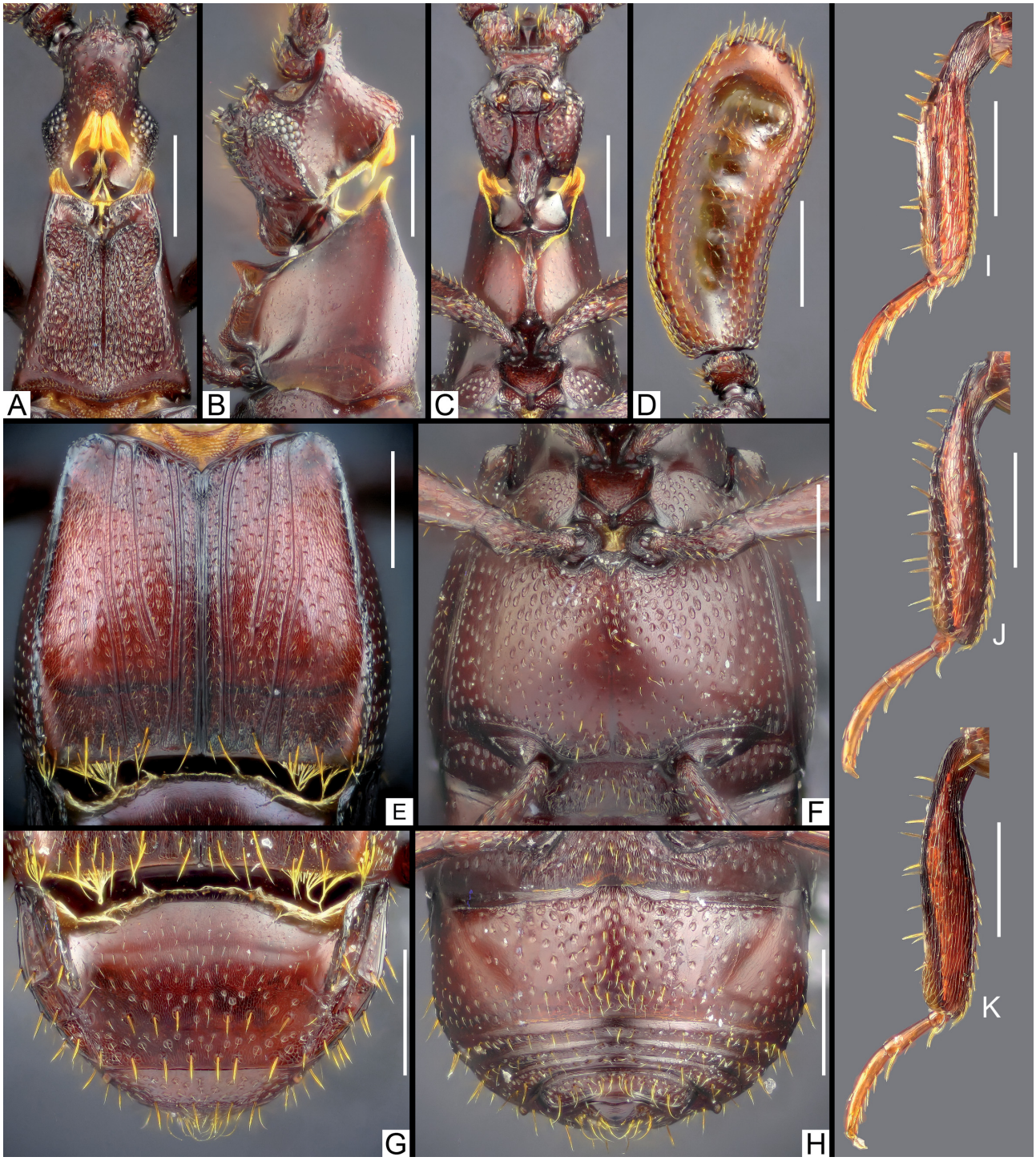

Fig. 3. Morphological details of *Colilodion schulzi*. (A) Head dorsum and pronotum. (B) Head and pronotum, in lateral view. (C) Head venter and prosternum. (D) Right antenna. (E) Elytra. (F) Meso- and metaventrite. (G) Abdominal tergites. (H) Abdominal sternites. (I) Protibia. (J) Mesotibia. (K) Metatibia. Scales: A-H = 0.3 mm; I-K = 0.2 mm.

Key to *Colilodion* species (modified from Löbl, 1994) (Figs 1-3)

1 Antenna four-segmented....2
- Antenna three-segmented....3
2 Antennomere IV evenly curved laterally throughout whole length (Fig. 2B); body size smaller, 2.15 mm. (southern China: Hainan) .... *C. tetramerus* Löbl, 1998
- Antennomere IV markedly curved laterally at basal one-fifth (Fig. 2C); body size larger, 2.54 mm. (central Vietnam: Thua Thien Hue) .... *C. thienmu* Nomura & Sugaya, 2007
3 Antennomere III strongly broadened, with impressed dorsal surface indicated by divided smooth fields 4
- Antennomere III subcylindrical or dorsally flattened, lacking impressed fields 6
4 Antennomere III broadened throughout whole length, base slightly narrowed (Figs 1A, 3D); posterior margin of elytra with long, thick golden setae (Fig. 3E). (Philippines: Palawan) .... *C. schulzi*, **new species**
- Antennomere III much more narrowed at base than at apex (Figs 1B, 1D); posterior margin of elytra lacking long, thick setae 5
5 Punctation of tergite IV distinct, similar to that of elytra and pronotum (Fig. 1B). (Indonesia: western Sumatra) .... *C. concinnus* Besuchet, 1991
- Punctation of tergite IV obsolete, much finer than that of elytra and pronotum (Fig. 1D). (East Malaysia: Sabah) .... *C. inopinatus* Besuchet, 1991
6 Antennomere III flattened dorsally (Fig. 2D); elytral marginal carina short, disappear before reaching mid-length of elytron. (West Malaysia: Pahang) .... *C. wuesti* Löbl, 1994
- Antennomere III subcylindrical (Figs 1C, 2A); elytral marginal carina extended posteriorly beyond mid-length of elytron 7
7 Antennomere III barely curved, shorter than half of body length (Fig. 1C). (East Malaysia: Sabah) .... *C. incredibilis* Besuchet, 1991
- Antennomere III distinctly curved, longer than half of body length (Fig. 2A). (East Malaysia: Sabah) .... *C. mirus* Besuchet, 1991

Biology: The single female was collected from a sample of sifted vegetable debris in a sparse coniferous forest that was subsequently processed using Winkler-Moczarski eclectors. The locality is a quite dry and hot place on a hilltop with lots of stones on the ground. The most common ant genera in that area were *Camponotus*, *Paratrechina*, and some other myrmecine genera (A. Schulz pers. comm.).

Distribution: The new species is known only from the type locality.

Etymology: The specific epithet is dedicated to Andreas Schulz, who collected the holotype.

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