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Descriptions of eight new species of the genus *Parancistrocerus* Bequaert (Hymenoptera: Vespidae: Eumeninae), with a key to the Oriental species

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Abstract

Eight new species, namely *Parancistrocerus latitergus* **sp. nov.** (China), *P. lamnulus* **sp. nov.** (China), *P. laticlypeus* **sp. nov.** (Thailand), *P. prominens* **sp. nov.** (Thailand), *P. guangxiensis* **sp. nov.** (China), *P. discarinatus* **sp. nov.** (Thailand), *P. abyssicavus* **sp. nov.** (Thailand), and *P. similiandrocles* **sp. nov.** (China) are described and illustrated. *Parancistrocerus samarensis* (von Schulthess, 1934) and *P. incorruptus incorruptus* Giordani Soika, 1972, are newly recorded from China and Thailand, respectively. An updated key to the Oriental species of the genus *Parancistrocerus* is also given.

Key words: Hymenoptera, Eumeninae, *Parancistrocerus*, new species, China, Thailand

Introduction

The genus *Parancistrocerus* was established by Bequaert (1925) as a subgenus of *Ancistrocerus*, and presently contains 104 species and 22 subspecies, among which 46 species and 10 subspecies occur in the Oriental Region, one subspecies in both Oriental and Palaearctic Regions, 30 species and 10 subspecies in the Nearctic Region, 27 species in the Neotropical Region, and one species and one subspecies in both the Nearctic and Neotropical Regions (Girish Kumar *et al*. 2016; Carpenter unpublished). Giordani Soika (1994) systematically reviewed the Oriental species of the genus, including 29 species and nine subspecies. Thereafter, Gusenleitner (2000, 2002, 2003, 2007, 2011, 2012, 2013) fragmentarily reported some new species of *Parancistrocerus* from Vietnam, Thailand, Laos, and China (Hongkong, Taiwan), and Girish Kumar *et al*. (2016) found three new species from India. In our study of collections of the genus from China and Thailand, of which specimens from Thailand are deposited in American Museum of Natural History in New York, eight species are confirmed as new to science. Also, *P. samarensis* (von Schulthess, 1934) is newly recorded from China and *P. incorruptus incorruptus* Giordani Soika, 1972, is newly recorded from Thailand. In the present paper, these new species are described and illustrated in detail. Some related figures of these two new records are offered. Based on this research, an updated key to the Oriental species of the genus is also provided.

Materials and methods

The specimens examined are deposited in Chongqing Normal University (China), American Museum of Natural History (USA), and Queen Sirikit Botanic Garden (Thailand). Descriptions and measurements were made under a stereomicroscope (Nikon SMZ1500), and all figures were taken with Microptics-USA/Visionary Digital photomicrographic system developed by Roy Larimer and multiple layers stacked using Helicon Focus. The ratios used throughout the descriptions were measured in the same magnification of the stereomicroscope. All measurements were taken as the maximal length of body parts measured. Body length was measured from the

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anterior margin of the head to the posterior margin of metasomal tergum 2. For the density description of punctures, "sparsely" means that interspaces are larger than punctures diameter, "moderately" means equal to the diameter, and "densely" means less than the diameter. The abbreviations used for morphological terms in the text are shown as follows: A, T and S refer to numbered antennal segments, metasomal terga and metasomal sterna, respectively; and OOL and POL mean ocellocular distance and post ocellar distance, respectively. The following abbreviations are used for institutions where the specimens examined are deposited: AMNH, CQNU and QSBG refer to American Museum of Natural History (New York), Chongqing Normal University (Chongqing), and Queen Sirikit Botanic Garden (Chiang Mai). Terminology principally follows Giordani Soika (1994) and Girish Kumar *et al.* (2016).

Genus Parancistrocerus Bequaert, 1925

Parancistrocerus Bequaert 1925: 64; Carpenter 1986: 79; van der Vecht & Carpenter 1990: 42; Giordani Soika 1994: 152; Girish Kumar *et al*. 2016: 137.

Type species *Odynerus fulvipes* de Saussure, 1855 [= *O*. "*flavipes* Fabricius" *sensu* de Saussure, 1852, non *Vespa flavipes* Fabricius, 1775], by original designation.

Diagnosis. T1 usually with transverse carina separating vertical face from dorsal face in Oriental species (Figs 4, 10, 18, 20, 29, 36, 62); withT2 smooth basally, forming acarinarium beneath the apex of T1 that is often filled with mites (Figs 7, 29) (often concealed, tergum should be bent backwards to expose acarinarium); anterior sloping face of pronotum medially with two connected or separated, deeply impressed fovea (Figs 9, 16, 22, 28, 35, 40, 56); propodeum with submarginal carina produced into pointed lamella apically, valvula enlarged and free posteriorly from submarginal carina; metanotum without tubercles; forewing with second submarginal cell not petiolate; metasoma sessile (Giordani Soika 1994; Girish Kumar *et al.* 2016).

Distribution. Nearctic, Neotropical, Oriental and Palaearctic Regions.

Key to the Oriental species of the genus Parancistrocerus

1. T2 with apical margin prolonged mesally (Figs 5, 55) . . . 2
- T2 with apical margin normal, not prolonged mesally (Figs 12, 17, 24, 32, 37, 43, 50, 63) . . . 8
2. Superior carina of propodeum well-developed and distinct, especially at top, clearly separating dorsal horizontal face from posterior face . . . 3
- Superior carina of propodeum not developed as above and irregular, not clearly separating dorsal horizontal face from posterior face . . . 4
3. Preapical groove of T2 with a series of small and thick punctures, much smaller than those at base of T2; T2 entirely black and with black thick pubescence . . . *P. nigriventris* Giordani Soika
- Preapical groove of T2 with a series of large punctures, much larger than those basally of T2; T2 with a red-ferruginous apical band and without black thick pubescence . . . *P. capocacciai* Giordani Soika
4. T1 obviously narrow and relatively elongated . . . *P. taihorinensis* (von Schulthess, 1934)
- T1 shorter and wider (Figs. 4) . . . 5
5. Male: distance between clypeal teeth slightly less than basal width of clypeus, apex of clypeus broadly emarginated . . . 6 *P. incorruptus* Giordani Soika
- Female unknown. Male: distance between clypeal teeth much shorter than basal width of clypeus, apex of clypeus more closely emarginated (Fig. 2) . . . 7
6. T1 not red-ferruginous . . . *P. i. kalimpongensis* Giordani Soika
- T1 mostly red-ferruginous . . . 6a
6a. Propodeum mostly red-ferruginous; T2 without apical yellow band (Fig. 55). . . . *P. i.incorruptus* Giordani Soika
- Propodeum black; T2 with apical yellow band . . . *P. i. demens* Giordani Soika
7. A11 short, not longer than wide; A13 very long, its apex reaching far beyond base of A11 . . . *P. irritatus* Giordani Soika
- A11 long, about 1.5× as long as wide; A13 relatively shorter, its apex just reaching base of A11 (Fig. 3) . *P. latitergus* **sp. nov.**
8. Apex of T3 prolonged mesally (Figs 13, 17, 24, 63) . . . 9
- T3 normal . . . 17
9. Apical prolongation of T3 little developed and indistinct (Figs 13, 17, 24) . . . 10
- Apical prolongation of T3 well-developed (Fig. 63) . . . 12
10. Apical prolongation of T3 not belonging to extension of margin, deriving from the apex below T3 (Fig. 13) . . . *P. lamnulus* **sp. nov.**

- Apical prolongation of T3 belonging to extension of margin, not deriving from the apex below T3 (Figs 17, 24). 11
11. Apical bands of T1–T2 thin and ivory white, punctures on T1–T2 relatively sparse (Figs. 17–18); apical width of clypeus obvious wider: 1.6× width between antennal sockets (Fig. 15); T2 evenly and moderately swollen from base to apex (Fig.17) . . . . . *P. laticlypeus* **sp. nov.**
- Apical bands of T1–T2 wider and yellow, punctures on T1–T2 dense (Figs 20, 24); apical width of clypeus narrower than above species: about 1.2× width between antennal sockets (Fig. 21); T2 obviously swollen mesally (Fig. 24) . . . . . *P. prominens* **sp. nov.**
12. Median sloping area of anterior face of pronotum polished 13
- Median sloping area of anterior face of pronotum punctate (Fig. 61) 16
13. Prolongation of T3 well-developed. . . . . 14 *P. yachowensis* Giordani Soika
- Prolongation of T3 less developed than above species 15
14. T1 with very small and sparse punctures; punctures of T2 much larger and denser mesally and at apex than those in basal half . . . . . *P. y. yachowensis* Giordani Soika
- T1 with dense punctures; T2 wholly with uniform punctures, not much larger in the apical half than in basal half. . . . . *P. y. konkunensis* Giordani Soika
15. Clypeus with a vertical blunt carina and without black spot; the front carina between antennae black. . . *P. kuraruensis* (Sonan)
- Clypeus without a vertical blunt carina and with black spot; the front carina between the antennae yellow. . . . . *P. intermediatus* (Sonan)
16. Clypeus in female basally with an arched yellow band (Fig. 59) . . . . . *P. samarensis* (Schulthess)
- Clypeus in female entirely yellow. . . . . *P. nitobei* (Sonan)
17. T2 strongly reflected at apex. 18
- T2 not reflected at apex 22
18. Cone transverse groove of T2 present at subapex. 19
- Cone transverse groove of T2 absent at subapex 20
19. Apical width of clypeus equal to distance between antennal sockets. . . . . *P. yamanei* Gusenleitner
- Apical width of clypeus shorter than distance between antennal sockets. . . . . *P. insolitus* Gusenleitner
20. Clypeus longer than wide . . . . . *P.assamensis* (Meade Waldo)
- Clypeus wider than long, or with equal length and width. 21
21. S2 mesally with longitudinal furrow; T2 mesally with flat, narrow longitudinal carina; spots on head, anterior band on pronotum, parategula and apical bands on T1, T2 and S2 red . . . . . *P. reflexus* Gusenleitner
- S2 evenly convexly curved in side view, mesally without longitudinal furrow; T2 without a longitudinal carina mesally; spots on head, anterior band on pronotum, parategula, and apical bands on T1, T2, and S2 light yellow . . . . *P. acclivus* Gusenleitner
22. Occipital carina incomplete, evanescent at vertex (Figs 28, 35). 23
- Occipital carina complete 25
23. T1 obviously densely punctate . . . . . *P. loharbandensis* Girish Kumar & Carpenter
- T1 sparsely punctate (Figs 26, 36) 24
24. Clypeus yellow (Fig. 27); punctures at median subapex of T2 much denser than other parts of T2 (Fig. 32). . . . . *P. guangxiensis* **sp. nov.**
- Clypeus with black spot mesally (Fig. 34); punctures of T2 uniform (Fig. 37) . . . . . *P. discarinatus* **sp. nov.**
25. T2 basally with a deep and big cavity mesally (Fig. 43). . . . . *P. abyssicavus* **sp. nov.**
- T2 basally without a deep and big cavity mesally 26
26. Anterior face of T1 strongly convex and continuing in the dorsal face, forming single convexity; thin and regular transverse carina of T1 placed at about half height, shortened on the sides and not reaching lateral margin 27
- Anterior face of T1 not strongly convex, always forming distinct angle with the dorsal face; transverse carina of T1 placed in the line of encounter between anterior and dorsal faces, and reaching lateral margin 29
27. S2 moderately and almost regularly convex. . . . . *P. cylindricus* (Saussure)
- S2 strongly convex basally, depressed and concave posteriorly. 28
28. Apical width of clypeus in female equal to the distance between antennal sockets; posterior face of propodeum smooth; body black with yellow marks, without ferruginous spots. . . . . *P. citropictus* Giordani Soika
- Apical width of clypeus in female much narrower than distance between antennal sockets; posterior face of propodeum not smooth; body black, with ferruginous spots . . . . . *P. cylindfoides* Giordani Soika
29. S2 basally with median longitudinal groove. . . . . *P. hongkongensis* Gusenleitner
- S2 basally without median longitudinal furrow 30
30. Anterior part of dorsal face of pronotum smooth and glossy, or with very small and sparse punctures, posterior part with dense punctures. . . . . *P. luzonicola V*an der Vecht
- Dorsal face of pronotum entirely with dense punctures 31
31. S2 strongly and sharply lowered basally (Fig. 51) 32
- S2 convex basally 36
32. Eye socket very prominent and forming smooth and shiny carina along lower edge of eye; both superior and submarginal carinae of propodeum well-developed, connected and forming complete enclosur. . . . . *P. acarophilus* Giordani Soika
- Eye socket normal; both superior and submarginal carinae propodeum less developed than the above species, not forming complete enclosure 33
33. Anterior face of T1 with median vertical carina on dorsal face . . . . . *P. holzschuhi* Gusenleitner
- Anterior face of T1 without median vertical carina on dorsal face. 34

34. Body without ferruginous spots and bands . . . . . *P. similiandrocles* **sp. nov.**
- Body with ferruginous spots and bands 35
35. Clypues widely and deeply emarginated at apex, with apical teeth sharply keeled . . . . . *P. rhipheus* (Cameron)
- Clypues narrowly and shallowly emarginated at apex, with apical teeth bluntly keeled . . . . . *P. simoni* Gusenleitner
36. Vertical anterior face of T1 equal to, or even longer than horizontal dorsal face 37
- Vertical anterior face of T1 much shorter than horizontal dorsal face 51
37. Lateral face of propodeum strongly and widely depressed in front of propodeal valvula 38
- Lateral face of propodeum not strongly depressed in front of propodeal valvula 48
38. Submarginal carina of propodeum developed and forming long yellow lamella 39
- Submarginal carina of propodeum absent or very little developed. 42
39. Superior carina of propodeum well-developed, regular and similar to submarginal carina, forming sharp and protruding lamellae behind metanotum . . . . . 40 *P. triconcavus* Giordani Soika
- Superior carina of propodeum much less developed than submarginal carina, and more or less irregular 41
40. Clypeus of female yellow; legs brown black and with yellow spots . . . . . *P. t. triconcavus* Giordani Soika
- Clypeus of female black; legs ferruginous to brownish ferruginous, without yellow spots. . . . . *P. t. rufipes* Giordani Soika
41. Apical width of clypeus equal to distance between antennal sockets; superior carina of propodeum lamellate; punctures on T1 and T2 denser; spots and bands on pronotum, mesopleuron, metanotum, T1, T2 and S2 ferruginous . . . . . *P. feai* Giordani Soika
- Apical width of clypeus less than distance between antennal sockets; superior carina of propodeum not lamellate; punctures on T1 and T2 fine, superficial; spots and bands on pronotum, mesopleuron, metanotum, T1, T2 and S2 yellow . . . . . *P. turensis* Girish Kumar & Carpenter
42. Superior carina of propodeum well-developed 43
- Superior carina of propodeum poorly developed, or absent 45
43. Lower part of mesopleuron with large dense punctures; S2 with two preapical bumps laterally; T2 with slightly preapical swelling . . . . . 44 *P. robertianus* (Cameron)
- Lower part of mesopleuron very smooth, without punctures; T2 and S2 normal. . . . . *P. kennethianus* Giordani Soika
44. Apical yellow bands of T1–T2 thin; T3 black; tibiae brownish ferruginous . . . . . *P. r. robertianus* (Cameron)
- Apical yellow bands of T1–T2 wide; T3 with wide apical band; tibiae yellow . . . . . *P. r. javanus* Giordani Soika
45. T2 much wider than long, with narrow, very deep and preapical furrow in which with one regular series of big punctures and preceded by obvious swelling 46
- T2 not large as above species, with normal apical margin 47
46. T2 swollen and with a regular series of moderately dense punctures just before the apical margin, punctures on swelling little larger than those of mesoscutum, with interspaces not convex and equal to or less than punctures; punctures of lower part of mesopleuron about same as those of upper part . . . . . *P. sulcatus* Giordani Soika
- T2 swollen and with very large and irregularly dense punctures before series of apical punctures, most punctures much larger than those of mesoscutum, interspaces strongly convex and very variable in size; lower part of mesopleuron with much smaller and sparser punctures than those of upper part . . . . . *P. taihorinshoensis* (Schulthess)
47. Upper part of mesopleuron with a few small punctures and lower part smooth and completely devoid of punctures; A4 and A5 not longer than wide . . . . . *P. inflaticeps* Giordani Soika
- Mesopleuron wholly strongly and densely punctate; A4 an A5 much longer than wide . . . *P. pseudallodynerus* Giordani Soika
48. Submarginal carina of propodeum well-developed, and joined to upper lamellae of valves . . . . . *P. malayanus* Giordani Soika
- Submarginal carina of propodeum undeveloped, and not combined with upper lamellae of valves 49
49. Superior carina of propodeum well-developed at top forming two large triangular teeth behind metanotum, teeth depressed from front to backwards, contributing to delimit the posterior horizontal back of propodeum . . . . . 50 *P. difformis* Giordani Soika
- Superior carina of propodeum practically absent, and propodeum without horizontal dorsal face . . *P. makilingi* Giordani Soika
50. T1–T2 and S2 with apical yellow bands. . . . . *P. d. difformis* Giordani Soika
- Metasoma entirely black. . . . . *P. d. nigerrimus* Giordani Soika
51. Eye bone swollen in lateral view; mesoscutum with a yellow rectangle spot in the middle of posterior apex . . . . . *P. kolambuganensis* (Schulthess)
- Eye bone normal in lateral view; mesoscutum without yellow spots 52
52. T1 about as long as width of its basal transverse carina . . . . . *P. gracilior* Giordani Soika
- T1 longer than width of its basal transverse carina. 53
53. Superior carina of propodeum completely absent, without horizontal dorsal face behind metanotum 54
- Superior carina of propodeum at least present at top, and with horizontal dorsal face behind metanotum clearly separating from posterior face by thick lamelliformed carina. 56
54. Clypeus longer than wide . . . . . *P. vicinus* Giordani Soika
- Clypeus wider than long 55
55. T2 apically with yellow and almost regular band, interspaces between punctures of T2 basally larger than diameter of punctures. . . . . *P. siamensis* Gusenleitner
- T2 apically with yellow and wavy band, interspaces between punctures of T2 basally less than diameter of punctures . . . . . *P. jaferpaloti* Girish Kumar & Carpenter
56. Body with reddish brown spots and bands, without yellow marks. . . . . *P. taikonus* (Sonan)
- Body with yellow spots and bands 57

57. Anterior transverse carina of pronotum thin, regular, and narrowly interrupted mesally and clearly angular on shoulder; black, with pale yellow or ivory white spots and bands . . . . . *P. pseudodynerus* (Dalla Torre)
- Anterior transverse carina of pronotum well-developed, widely interrupted mesally and widely arched on shoulder; black, with bright yellow spots and bands . . . . . 58 *P. androcles* (Meade-Waldo)
58. Mesoscutum with a large yellow spot . . . . . *P. a. marginalis* Giordani Soika, 1994
- Mesoscutum entirely black 59
59. Spots on pronotum, scutellum, and metanotum ferruginous; bands of metasoma yellow . . . . . *P. a. sumbanus* Giordani Soika
- Spots on mesosoma and metasoma yellow 60
60. Scutellum black . . . . . *P. a. androcles* (Meade Waldo)
- Scutellum yellow . . . . . *P. a. scutellaris* Giordani Soika

***Parancistrocerus latitergus* Li & Carpenter, sp. nov.**
(Figs 1–6)

Material examined. Holotype, 1♂, China, Hunan prov. Zhangjiajie National Forest Park, 29°18'55.2"N, 110°26'05.4"E, 27.VII.2016, Tingjing Li and Pan Huang, No. 1004106 (CQNU). Paratype, ♂, China, Guizhou prov., Qiannan State, Libo County, Dongdai Village in Maolan National Nature Reserve, 25°39'41.4"N, 107°42'46.3"E, 21.VI.2015, Zhenxia Ma and Pan Huang, No. 1004107 (CQNU).**°18'55.2"N 110°26'05.4"**

Diagnosis. This species is similar to *P. taihorinensis* (von Schulthess, 1934) from Taiwan, China by having T2 with the apical margin prolonged mesally, and the superior carina of propodeum not developed and irregular, not clearly separating the horizontal dorsal face of propodeum from the posterior face. It differs from *P. taihorinensis* and other congeners by the combination of the following characters: distance between clypeal teeth much shorter than basal width of clypeus, area between clypeal teeth more closely emarginate at apex (Fig. 2); A11 long, about 1.50× as long as wide; A13 short, its apex just reaching base of A11 (Fig. 3); and T1 much wider than long (Fig. 4).

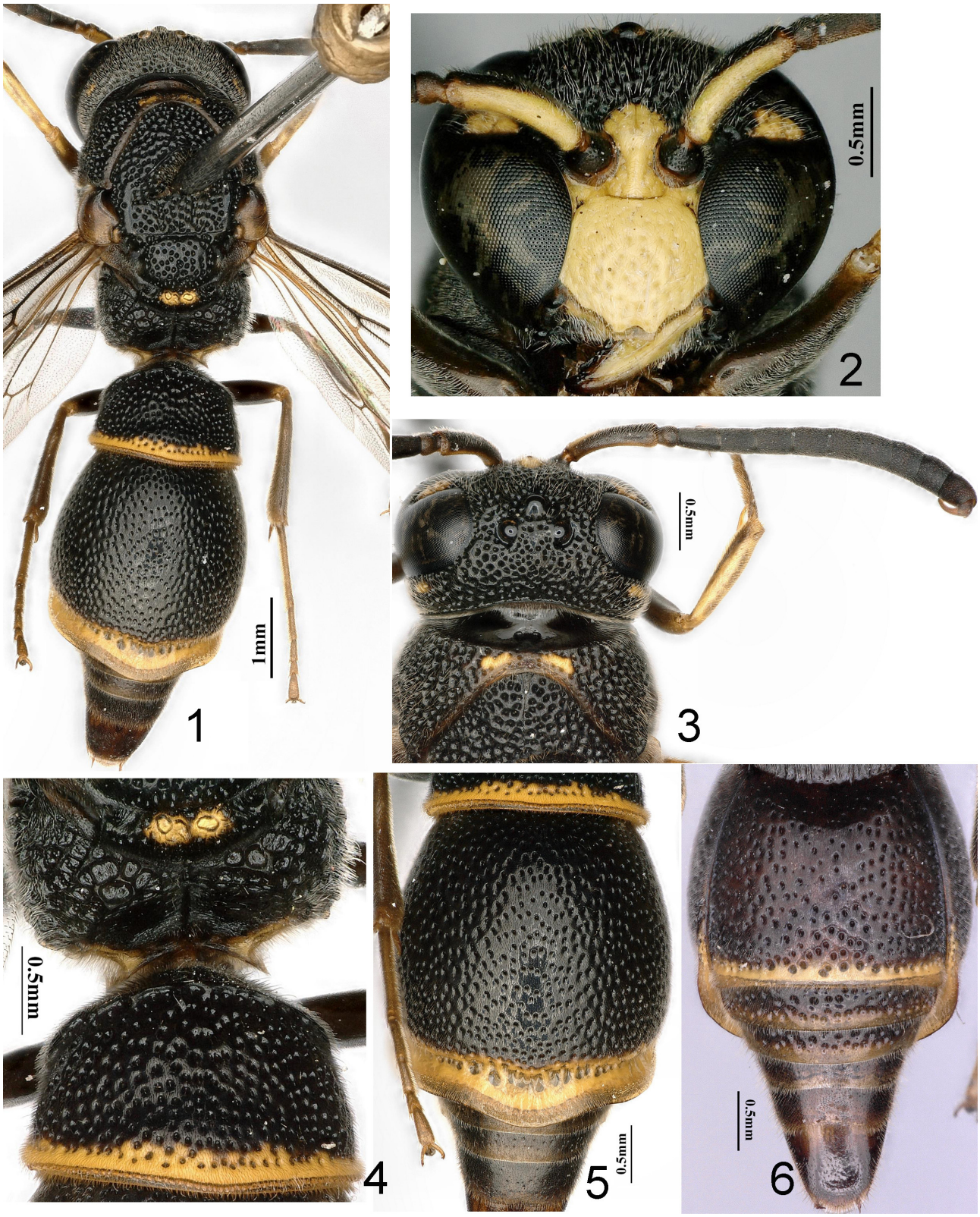
Description. *Male* (Fig. 1). Body length 8.0–8.5 mm. Head longer than wide in frontal view; clypeus (Fig. 2) moderately punctate, clypeal maximum width 1.02× its length, somewhat convex, apex somewhat emarginated (in another specimen moderately emarginated forming two lateral teeth), apical width 1.10× distance between antennal sockets; inter-antennal area with longitudinal carina; frons coarsely punctate and distinctly reticulate, punctures on vertex and tempora slightly sparser and smaller than those of frons; interocular distance on vertex 1.53× that at clypeus; POL 1.35× OOL; distance between anterior and posterior ocelli longer than diameter of anterior ocellus; occipital carina complete; A11 long, about 1.50× as long as wide, and A13 short, its apex just reaching base of A11 (Fig. 3).

Sloping area of anterior face of pronotum obviously polished, with two round and separated foveae mesally (Fig. 3), just laterally with pubescence; pronotal carina evanescing dorsally; pronotum, mesoscutum and scutellum coarsely punctate, these punctures very similar to those on vertex; median length of mesoscutum about as long as its maximum width; scutellum medially with an indistinct and longitudinal groove; metanotum with coarse punctures, interspaces carinate and sharply and minutely dentiformed; mesopleuron coarsely punctate and reticulated except large area of epicnemium and posterior margin coriaceous; epicnemial carina present and strong; metapleuron with few transverse striae on upper part and coriaceous on lower part; dorsal face of propodeum (Fig. 4) coarsely punctate, punctures large, shallow, flat bottomed and interspaces with reticulate carinate, forming short and horizontal area behind midline of metanotum; posterior face of propodeum somewhat concave, with median longitudinal carina, and a few thin and transverse striae; lateral sides of propodeum densely with minute transverse striae; superior carina of propodeum not developed and just carinate at top, submarginal carina well-developed forming enclosure above propodeal valvula. Tegula smooth, with minute punctures, posteriorly emarginated adjoining parategula and about as long as apex of latter.

T1 with strong transverse carina separating vertical face from dorsal face (Fig. 4), transverse carina 0.84× as wide as dorsal horizontal face; vertical anterior faces shorter than dorsal horizontal face, dorsal face much wider than long, 1.63× its median length, coarsely punctate, punctures similar to those on mesoscutum, and without regular rows of punctures at yellow band; T2 (Fig. 5) long, 0.87× as wide as its median length, moderately punctate, punctures obviously sparser than those of T1, T2 laterally not concave basally, without cave at median base, without rows of punctures at apex, with preapical transverse groove, strongly punctate, followed by long translucent lamella, and prolonged mesally; S2 not lowered basally (Fig. 6); other metasomal segments normal.

Black. Following parts yellow: clypeus (Fig. 2), mandible excluding apex, ventral side of scape, ocular sinus,

inter-antennal area connecting the spot on lower frons, a small spot on upper tempora, two separated spots on dorsal surface of pronotum (Fig. 3), two connected spots of metanotum (Fig. 4), a band of fore tibia inside, thin apical bands of T1 and S1, and a wide apical band of T2 (Figs 5–6); legs mostly, tegula and parategula dark brown.



FIGURES 1–6. *Parancistrocerus latitergus* **sp. nov.**, holotype, ♂. 1. Habitus, dorsal view; 2. Clypeus; 3. Head and pronotum, dorsal view; 4. Propodeum and T1, dorsal view; 5. T2–T5, dorsal view; 6. S2–S5, ventral view.

Female. Unknown.

Distribution. China (Hunan, Guizhou).

Etymology. The specific name *latitergus* is derived from two Latin words: *latus* (=wide) and *tergum*, referring to T1 being much wider than long.

Parancistrocerus lamnulus Li & Carpenter, sp. nov.

(Figs 7–13)

Material examined. Holotype, 1♂, China, Yunnan prov., Puer City, Yuan Cunty, Mengda Town, Yiwendao Village, 24°00'09.4"N, 100°51'46.5"E, 11.VI.2017, Yan Peng, No. 1004108 (CQNU).

Diagnosis. This species can be easily distinguished from other members of *Parancistrocerus* by having an apical prolongation of T3 formed by a narrowly separated lamella deriving from the ventral T3 apex (Fig. 13).

Description. *Male* (Fig. 7). Body length 6.0 mm. Head longer than wide in frontal view; clypeus (Fig. 8) moderately punctate, clypeal maximum width 0.86× its length, somewhat convex, apex moderately emarginated forming two lateral teeth, apical width 1.19× distance between antennal sockets; inter-antennal area with longitudinal carina; frons coarsely punctate and distinctly reticulate, punctures on vertex and tempora sparser and smaller than those of frons; interocular distance on vertex 1.96× that at clypeus; POL 1.29× OOL; distance between anterior and posterior ocelli as long as diameter of anterior ocellus; occipital carina complete; A11 slightly wider than long; apex of A13 approaching base of A11.

Median sloping area of anterior face of pronotum polished, with two small and separated foveae mesally (Fig. 9); lateral sides of anterior face of pronotum with coarse punctures; pronotal carina absent dorsally; pronotum, mesoscutum and scutellum coarsely punctate, these punctures similar to those on vertex; median length of mesoscutum as long as its maximum width; scutellum medially without an indistinct and longitudinal groove; metanotum with coarse punctures, interspaces carinate and bluntly dentiformed; mesopleuron coarsely punctate and reticulated except large area of epicnemium and posterior margin with pubescence; epicnemial carina present and strong; metapleuron coriaceous and without pubescence; dorsal face of propodeum coarsely punctate and forming short horizontal area behind midline of metanotum (Fig. 10), punctures large, shallow, flat bottomed and interspaces with reticulate carinae; posterior face of propodeum concave, with median longitudinal carina, and thin, dense and transverse striae; lateral sides of propodeum dull and sparsely punctate, interspaces between punctures somewhat carinate; superior carina of propodeum not developed and just somewhat carinate at top, submarginal carina well-developed as lobe above propodeal valvula. Tegula smooth with minute punctures, somewhat rounded posteriorly, emarginate adjoining parategula and almost reaching apex of latter.

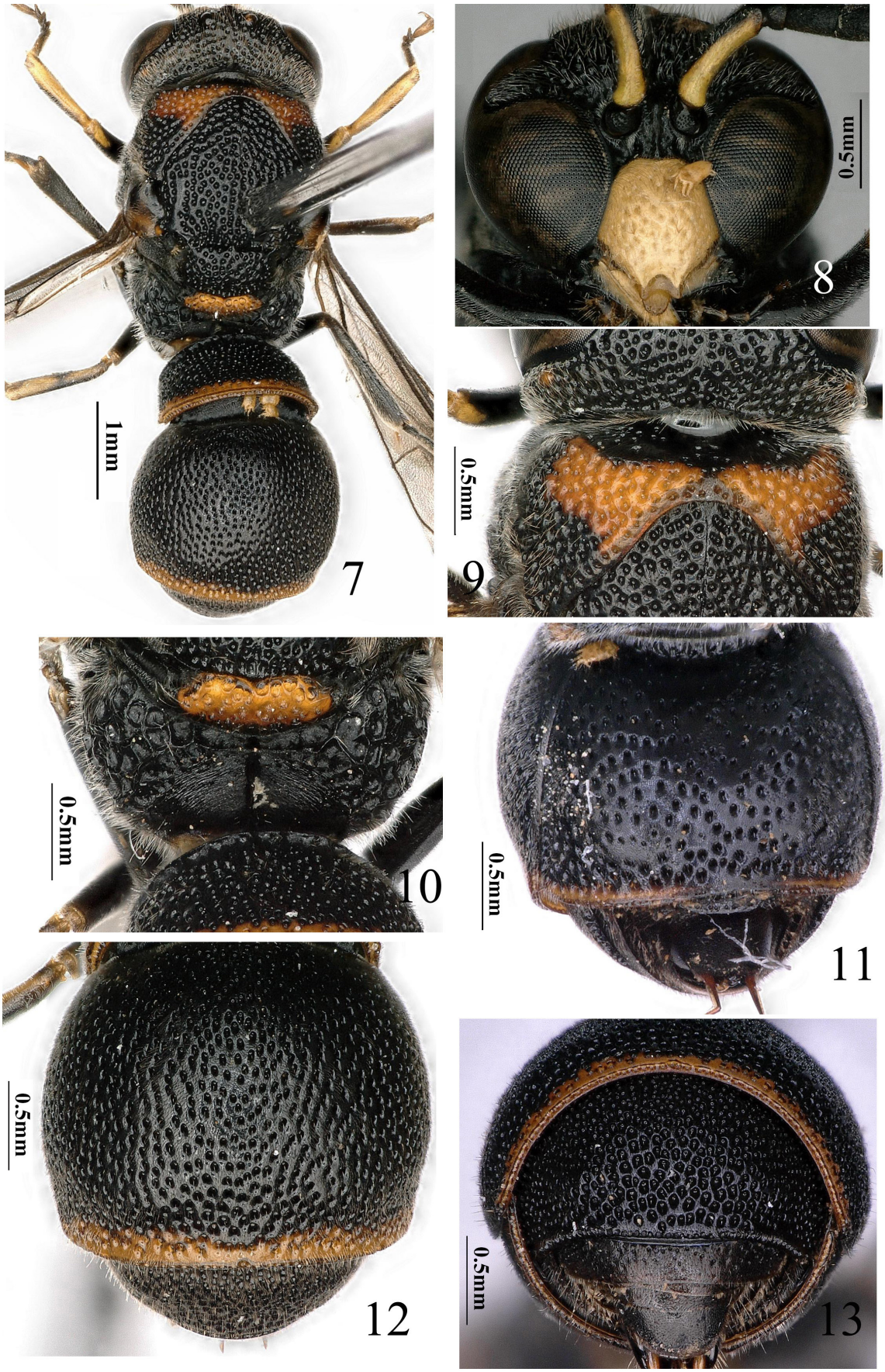
T1 with strong transverse carina separating vertical face from dorsal face (Fig. 10), transverse carina 0.82× as wide as dorsal horizontal face; vertical anterior face about half of dorsal horizontal face, moderately setaous, coriaceous, without scattered punctures, dorsal face 1.80× as wide as its median length, coarsely reticulate and punctate, interspaces between punctures obviously carinate, similar to those on frons, and without regular rows of punctures at yellow band; T2 (Fig. 12) evenly punctate, punctures slightly sparser than those of T1, interspaces almost equal to diameter of puncture, T2 bell-formed, laterally not concave basally, median part not swollen, without cave at median base, without rows of punctures at apex, 1.83× as wide as its median length; maximum width of T2 1.56× that of T1, T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 strongly lowered basally and then widely depressed (Fig. 11); punctures of T3 denser than those of other metasomal parts, and apex of T3 with narrow and independent lamella deriving from apex below T3 and forming indistinct prolongation mesally (Fig. 13); S3 transversely elongated at the median apex (Fig. 11); other metasomal segments normal.

Black. Following parts yellow: clypeus (Fig. 8), mandible excluding apical and outer margins, ventral side of scape, and spots on all tibiae and apexes of fore and mid femora; small spot on upper tempora, median, interrupted and wide band on dorsal surface of pronotum, posterior outside of tegula, apex of parategula, metanotum, submarginal carina, thin apical bands of T1–T2, and thin, interrupted apical band of S2 brownish yellow.

Female. Unknown.

Distribution. China (Yunnan).

Etymology. The specific name *lamnulus* is derived from the Latin word *lamnula* (=lamellate), referring to the apical lamella of T3.



FIGURES 7–13. *Parancistrocerus lamnulus* **sp. nov.**, holotype, ♂. 7. Habitus, dorsal view; 8. Clypeus; 9. Pronotum, dorsal view; 10. Propodeum, dorsal view; 11. S2, ventral view; 12. T2, dorsal view; 13. T3–T7, dorsal view.

***Parancistrocerus laticlypeus* Li & Carpenter, sp. nov.**
Figs 14–19

Material examined. Holotype, 1♀, Thailand, Loei Phu Kradueng NP Forest prot. unitLoei.5 (Phakbung), 16°50.54′N, 101°41.663′E, 406m, Malaise trap, 19–25.II.2007, Noo Kerdlom leg, T1502, deposited in QSBG.

Diagnosis. This species is similar to *P. samarensis* (Schulthess) from Laos and Philippines by having the apex of T3 prolonged mesally. It differs from *P. samarensis* and other congeners by the following combination of characters: apical prolongation of T3 little developed and indistinct (Figs. 17), clypeus with flattened part well-defined by two longitudinal carinae from middle to apex, clypeal apex obviously wide: 1.61× distance between antennal sockets (Fig. 15), and apical bands of T1–T2 thin and ivory white (Figs 17–19).

Description. *Female* (Fig. 14). Body length 6.0 mm. Head slightly wider than long in frontal view; clypeus (Fig. 15) sparsely punctate excluding apex smooth, with flattened part well-defined by two longitudinal carinae from middle to apex, clypeal maximum width 1.09× its length, apex moderately emarginated forming two lateral and blunt teeth, apex 1.61× as wide as distance between antennal sockets; inter-antennal area strongly swollen; frons coarsely punctate and reticulate, punctures on vertex and tempora sparser than those of frons; cephalic foveae present, somewhat circle and flattened, covered with setae and easily discriminated from same surrounding punctures; interocular distance on vertex 1.47× that at clypeus; interspace of posterior ocelli polished and sparsely punctate, POL 1.29× OOL; distance between anterior ocellus and posterior ocelli 1.1× as long as diameter of anterior ocellus; occipital carina incomplete mesally.

Median area of anterior face of pronotum polished, two median foveae contiguous and V-shaped mesally; anterior face of pronotum laterally with setae and unobvious punctures; pronotal carina absent dorsally, and present and not strong laterally; pronotum, mesoscutum and scutellum punctate and somewhat reticulate, these punctures almost as big and deep as those on head (Fig. 14); median length of mesoscutum as long as its maximum width; scutellum medially without longitudinal groove; metanotum with coarse punctures, interspaces more or less carinate; mesopleuron coarsely punctate and reticulated except large area of epicnemium and posterior margin with pubescence covering epicnemial carina; metapleuron with pubescence; dorsal face of propodeum forming horizontal area behind midline of metanotum (Fig. 18), obviously with pubescence and coarsely and deeply punctate, interspaces between punctures with reticulate carinae; posterior face of propodeum deeply concave, densely with transverse striate, and withmedian, longitudinal and strong carina; lateral sides of propodeum similar to dorsal face on upper part, and with pubescence and without punctures on lower part; superior carina of propodeum well-developed and lamellate at top, submarginal carina moderately projecting as lobe above propodeal valvula. Tegula smooth with few minute punctures, evenly rounded posteriorly, posteriorly emarginated adjoining parategula and almost reaching apex of latter.

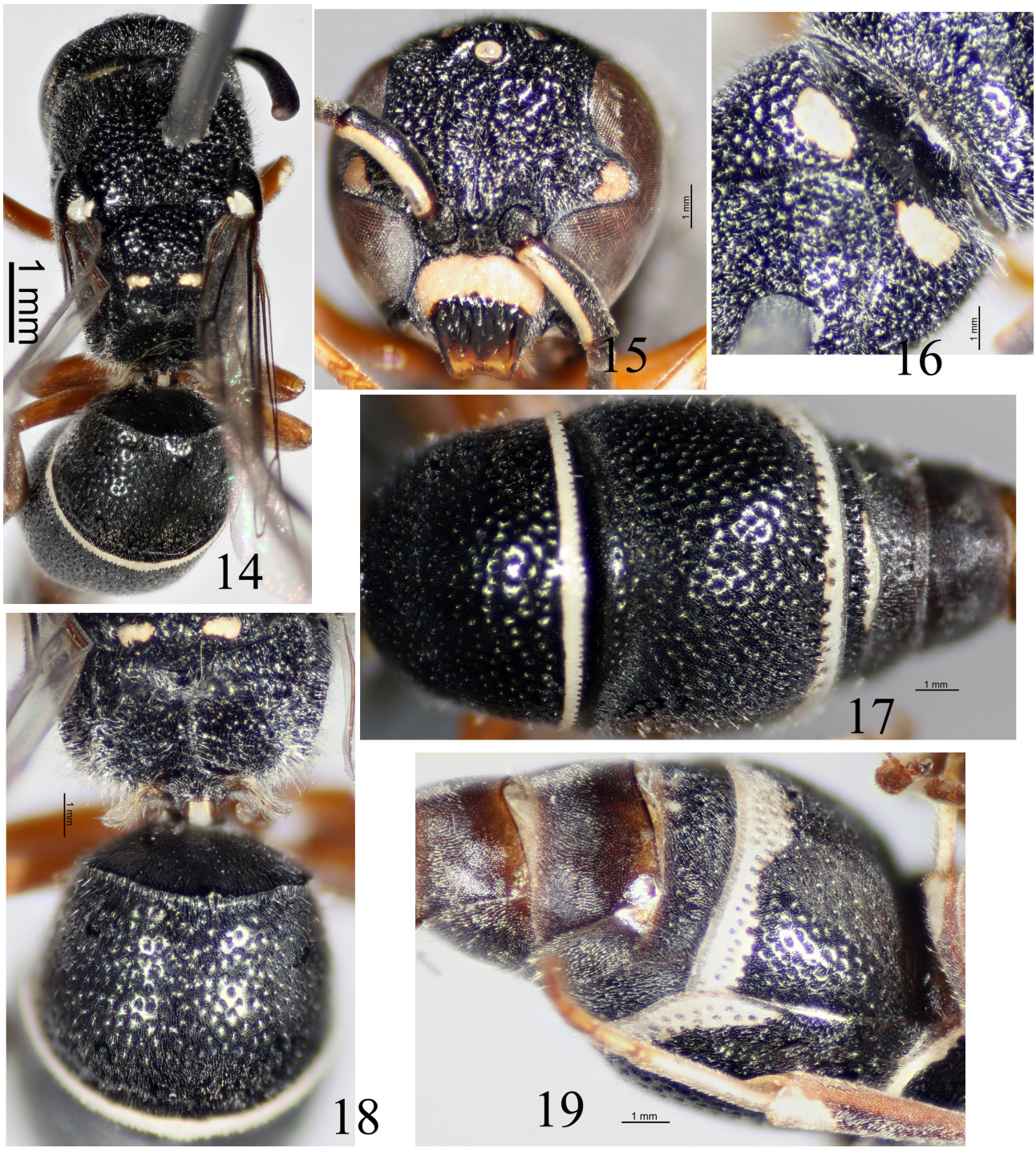
T1 (Fig. 18) with strong arched and transverse carina separating vertical face from dorsal face, transverse carina 0.75× as wide as dorsal horizontal face; vertical anterior face of T1 much shorter than dorsal horizontal face, with few scattered punctures, dorsal face long, 1.38 as wide as its median length, with shallow and transverse groove at about 1/3 from the base of dorsal face, moderately punctate and not reticulate, punctures much sparser, and shallower than those on head and mesosoma, and without rows of punctures at the yellow band; punctures of T2 (Fig. 17) similar to and somewhat denser than those of T1, T2 not swollen, laterally normal at base, without cave at median base, with one regular row of sparse punctures at subapex, 1.49× as wide as its median length; maximum width of T2 1.12× that of T1, T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 (Fig. 19) convex basally; both T3 (Fig. 17) and S3 (Fig. 19) indistinctly prolonged at median apex forming small and arched lobe; following metasomal segments normal.

Body black, following parts yellow or whitish yellow: arched band of clypeus basally, mandible basally, apical spot in ocular sinus, a small spot on upper tempora, ventral side of scape, two lateral spots on dorsal surface of pronotum, and two lateral spots on metanotum; the following parts ivory white: anterior and posterior spots of tegula, parategula, submarginal carina, a small apical spot on fore femur, apical spots on all tibiae, bands on first mid and hind tarsi, thin apical bands of T1–T2 and wider apical band of S2, and elongated lobe of T3; apex of clypeus, mandible mostly, and all legs excluding ivory white spots brownish yellow.

Male. Unknown.

Distribution. Thailand.

Etymology. The specific name *laticlypeus* is derived from the Latin word *latus* (=wide) and the clypeus, in reference to the wide clypeal apex.



FIGURES 14–19. *Parancistrocerus laticlypeus* **sp. nov.**, holotype, ♀. 14. Habitus, dorsal view; 15. Clypeus; 16. Pronotum, dorsal view; 17. T1–T5, dorsal view; 18. Propodeum and T1, dorsal view; 19. S2–S4, ventral view.

***Parancistrocerus prominens* Li & Carpenter, sp. nov.**
(Figs 20–25)

Material examined: Holotype,1♀, Thailand, Phetchabun Thung Salaeng Luang NP for Gang Wang Nam Yen, 16°36.284′N, 100°53.128′E, 749m, Pan trap, 18–19.VI.2007, Pongpitak & Sathit leg., T2054, deposited in QSBG

Diagnosis. This species is similar to *P. samarensis* (Schulthess) from Laos and Philippines by having the apex of T3 prolonged mesally. It differs from *P. samarensis* and other congeners by the following combination of characters: apical prolongation of T3 poorly-developed and indistinct (Fig. 24), and T2 obviously swollen mesally (Fig. 24).

Description. *Female* (Fig. 20). Body length 7.0 mm. Head about as wide as long in frontal view (Fig. 21); clypeus densely punctate excluding apex, clypeal apex smooth, clypeal maximum width 1.04× its length, moderately convex at base to middle and depressed at apex, apex moderately emarginated forming two lateral and blunt teeth, apex 1.19× as wide as distance between antennal sockets; inter-antennal area with longitudinal carina; frons somewhat swollen, coarsely punctate, and distinctly reticulate, punctures on vertex and tempora sparser than those of frons; cephalic foveae unobvious and almost same as surrounding punctures; interocular distance on vertex 1.42× that at clypeus; POL 0.79× OOL; distance between anterior and posterior ocelli 1.43× as long as diameter of anterior ocellus; occipital carina complete.

Median area of anterior face of pronotum (Fig. 22) coriaceous, with two small and separated foveae mesally similar to surrounding punctures; anterior face of pronotum laterally with coarse punctures; pronotal carina absent dorsally, and present and strong laterally; posterior and lateral sides of pronotum, mesoscutum and scutellum coarsely punctate and obviously reticulate, these punctures much bigger and dipper than those on head; median length of mesoscutum as long as its maximum width; scutellum medially with indistinct and longitudinal groove; metanotum with coarse punctures, interspaces carinate and bluntly dentiformed; mesopleuron coarsely punctate and reticulated except large area of epicnemium and posterior margin with pubescence; epicnemial carina present and strong; metapleuron with pubescence; dorsal face of propodeum not forming horizontal area behind midline of metanotum (Fig. 23), and coarsely and deeply punctate, interspaces between punctures with reticulate carinae, posterior face deeply concave, with median longitudinal and strong carina, and with thin, dense and transverse striae on upper part and smooth on lower part; lateral sides of propodeum dull and sparsely punctate, interspaces between punctures somewhat carinate; superior carina of propodeum well-developed and distinct, especially lamellate at top, submarginal carina also well-developed almost extending to apex of dorsal face and forming an enclosure above propodeal valvula (Fig. 23). Tegula smooth with minute punctures, evenly rounded posteriorly, emarginated adjoining parategula and slightly shorter than apex of latter.

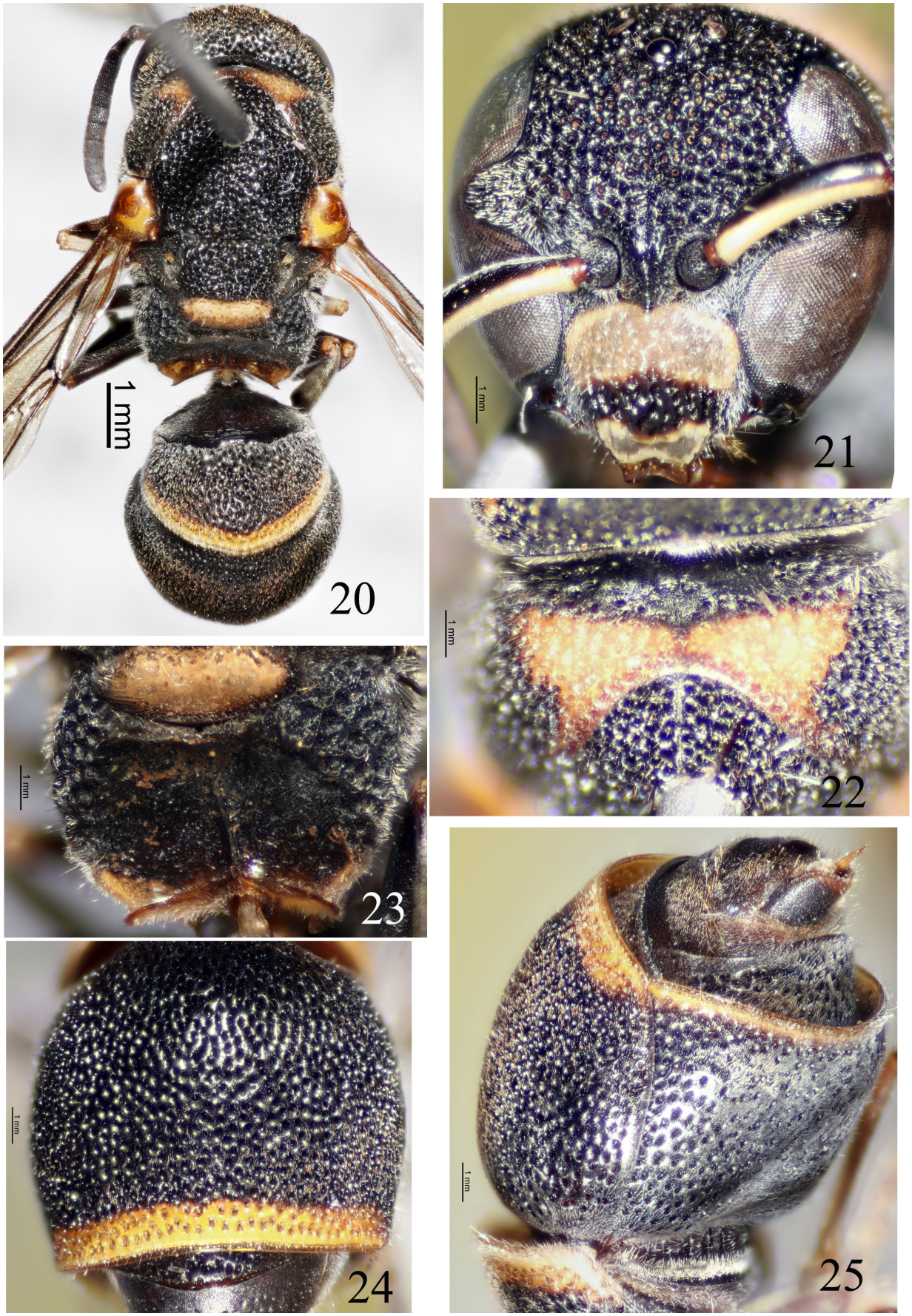
T1 with wavy and strong transverse carina separating vertical face from dorsal face, transverse carina 0.85× as wide as dorsal horizontal face; vertical anterior face longer than or at least as long as dorsal horizontal face, coriaceous, without scattered punctures, and with a few thin and transverse striae on upper part; dorsal face not swollen, relatively short, 1.79× as wide as its median length, coarsely punctate and somewhat reticulate, punctures just slightly sparser, shallower and smaller than those on head and mesosoma, and with two regular rows of punctures at apical band; punctures of T2 (Fig. 24) similar to or even denser than those of T1, coarse and reticulate, T2 bell-shaped, laterally somewhat concave at base, without cave at median base, obviously swollen mesally with two regular rows of punctures at apical band, 1.18× as wide as its median length; maximum width of T2 1.20× that of T1, T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 (Fig. 25) lowered basally and then widely depressed almost forming flattened face mesally; T3 (Fig. 24) arched and somewhat elongated at median apex forming a small lobe; S3 (Fig. 25) transversely elongated as that of T3; following metasomal segments normal.

Body black, the following parts yellow to brownish yellow: clypeus except a big dark brown and transverse band mesally and outer border, mandible basally, a circle spot on upper tempora, ventral side of scape, median and wide band on dorsal surface of pronotum, a circle band of tegula, a spot at top of mesepisternum, parategula, metanotum, submarginal carina, small apical spot on fore femur, outer long band on fore tibia, a small spot on mid tibia, wide apical bands of T1–T2 and thin band of S2; mandible except base, tegula except yellow band, and all tarsi ferruginous to dark ferruginous.

Male. Unknown.

Distribution. Thailand.

Etymology. The specific name is derived from the Latin word *prominens* (=prominent), referring to the obvious medial swelling of T2.



FIGURES 20–25. *Parancistrocerus prominens* **sp. nov.**, holotype, ♀. 20. Habitus, dorsal view; 21. Clypeus; 22. Pronotum, dorsal view; 23. Propodeum, dorsal view; 24. T2–T3, dorsal view; 25. S2–S5, later-ventral view.

***Parancistrocerus guangxiensis* Li & Carpenter, sp. nov.**
(Figs 26–32)

Material examined. Holotype, 1♀, China, Guangxi Zhuang Autonomous Region, Cenxi City, Malu Town, Lingyao Village, 10.VI.2016, Zhenxia Ma & Yan Peng, 22°52'54.5"N, 110°49'02.7"E, No. 1004109 (CQNU). Paratype: 1♀, China, Guangxi Zhuang Autonomous Region, Yulin City, Rong County, Ganwang Village, 22°37'08.6"N, 110°44'45.3"E, 8.VI.2016, Zhenxia Ma & Yan Peng, No. 10041010 (CQNU).

Diagnosis. This species is similar to *P. loharbandensis* Girish Kumar & Carpenter from India by having the occipital carina incomplete, evanescing at the vertex (Fig. 28). It differs from *P. loharbandensis* and other congeners by the following combination of characters: clypeus yellow (Fig. 27), T1 sparsely punctate (Fig. 26), and punctures at the median subapex of T2 denser than remainder of T2 (Fig. 32).

Description. *Female* (Fig. 26). Body length 7.0 mm. Head 1.09× as wide as long in frontal view; clypeus (Fig. 27) convex excluding apex, apex moderately emarginated forming two lateral teeth, apical width 0.96× distance between antennal sockets, maximum width of clypeus 1.15× its length medially, with sparse punctures; frons, vertex and tempora with dense punctures, punctures on frons relatively denser than vertex and tempora; POL 1.11× OOL; distance between anterior and posterior ocelli 1.14× as long as anterior ocellus; distance between two posterior ocelli 2.13× as long as posterior ocellus; cephalic foveae degenerate, unobvious; interocular distance on vertex 1.59× that at clypeus; occipital carina incomplete, just present laterally (Figs 26, 28).

Median sloping area of anterior face of pronotum polished and with two deeply connected foveae mesally, lateral sides sparsely punctate, pronotal carinaabsent dorsally and present laterally (Fig. 28); pronotum, mesoscutum and scutellum coarsely punctate (Fig. 26), punctures somewhat sparser than those on frons and vertex of head; median length of mesoscutum 1.05× as long as its maximum width; metanotum with strong and large punctures, interspaces carinate and somewhat dentiformed; mesopleuron closely punctured except large area of epicnemium with pubescenceand posterior margin coriaceous; epicnemial carina present; dorsal face of propodeum (Fig. 30) forming horizontal area behind midline of metanotum, and with large punctures, interspaces strongly carinate and reticulate; posterior face of propodeum concave and finely striate, with strong and longitudinal median carina; lateral sides of propodeum punctate; supermarginal carina of propodeum well-developed and lamellate, separating dorso-lateral face from posterior face; submarginal carina strongly projecting as a lobe above propodeal valvula. Tegula smooth with minute punctures, evenly rounded posteriorly, emarginate adjoining parategula, and slightly shorter than apex of latter posteriorly.

T1 (Fig. 29) with strong transverse carina separating vertical face from dorsal face; vertical anterior face of T1 shorter than dorsal horizontal face; vertical face of T1 punctate on upper part; dorsal face of T1 sparsely punctate, 1.45× as wide as its median length, with about 3 irregular rows of punctures at yellow band; punctures of T2 relatively denser than those of T1 (Fig. 32), punctures at the median subapex much denser, T2 with wavy apical yellow band, about two irregular rows of punctures at yellow band; T2 1.35× as wide as its median length; maximum width of T2 slightly larger (1.10×) than that of T1; T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 (Fig. 31) convex basally, very weakly depressed after; following metasomal segments normal.

Body black. Following parts yellow: mandible basally, clypeus excluding apical margin, ocular sinus, small median spot on lower part of frons, band on tempora, scape ventrally, anterior band on dorsal surface of pronotum, spot on top of mesepisternum, tegula (except median brown area), parategula, metanotum, apexes of fore and mid femora, almost all tibiae, and apical bands on T1, T2 and S2; brown to dark brown parts: apex of mandible, apical margin of clypeus, tegula except yellow spots, and all tarsi.

Male. Unknown.

Distribution. China (Guangxi).

Etymology. The name *guangxiensis* is a reference to the type locality of the species: Guangxi.

***Parancistrocerus discarinatus* Li & Carpenter, sp. nov.**
(Figs 33–37)

Material examined. Holotype, 1♀, Thailand, Sakon Nakhon PhuPhan NP Behind forest prot. Unit at Huay Wien

Prai, 17°6.81′N, 104°0.318′E, 318m, Malaise trap, 17–25.II.2007, Sailom Tongboonchai leg, T1690, deposited in QSBG.

Diagnosis. This species is also similar to *P. loharbandensis* Girish Kumar & Carpenter from India by having the occipital carina incomplete, evanescing at the vertex (Fig. 35). It differs from *P. loharbandensis* and other congeners by the following combination of characters: T1 sparsely punctate, clypeus with black spot mesally, and punctures of T2 uniform.

Description. *Female* (Fig. 33). Body length 6.0 mm. Head as wide as long in frontal view; clypeus (Fig. 34) densely with setae, sparsely punctate, clypeal maximum width 1.2× its length, moderately convex from base to middle and then depressed at subapex, apex emarginated forming two lateral teeth, apical width 1.12× distance between antennal sockets; inter-antennal area with longitudinal carina; frons swelling indistinctly, deeply and densely punctate, and reticulate, punctures on vertex and tempora almost similar to those of frons; cephalic foveae present, round, and just much bigger than surrounding punctures; interocular distance on vertex 1.52× that at clypeus; POL 0.86× OOL; distance between anterior ocellus and posterior ocelli 1.33× as long as diameter of anterior ocellus; occipital carina incomplete and just laterally present (Fig. 35).

Median area of anterior face of pronotum polished, with two separated foveae mesally (Fig. 35); anterior face of pronotum laterally with sparse setae and with dense punctures; pronotal carina absent dorsally, and just present and strong laterally; posterior and lateral sides of pronotum, mesoscutum and scutellum strongly and densely punctate, and distinctly carinate and reticulate, these punctures slightly bigger and deeper than those on head (Fig. 33); mesoscutum not swollen, median length of mesoscutum as long as its maximum width; scutellum medially without a longitudinal groove; metanotum with coarse punctures, interspaces somewhat dentiformed; mesopleuron closely punctate except large area of epicnemium and posterior margin pubescence; epicnemial carina present; metapleuronpubescence and with a few short striae on lower part;dorsal face of propodeum (Fig. 36) not forming horizontal area behind midline of metanotumand coarsely and deeply punctate, interspaces between punctures with reticulate carinae, posterior face distinctly and deeply concave, coriaceous, with median longitudinal carina and almost without sparse punctures and transverse striae; lateral sides of propodeum punctate, interspaces between punctures more or less carinate; superior carina of propodeum well-developed and especially projecting as sharply dentiformed at top clearly separating dorsal face of propodeum from posterior face, submarginal carina moderately projecting as lobe above propodeal valvula. Tegula smooth with minute punctures, evenly rounded posteriorly, emarginated adjoining parategula and almost extending to apex of latter posteriorly.

T1 (Fig. 36) with regular, strong transverse carina separating vertical face from dorsal face, transverse carina 0.69× as wide as dorsal horizontal face; vertical anterior face distinctly shorter than dorsal horizontal face, moderately polished, and without scattered punctures, dorsal face with transverse groove at 1/3 area from base and gradually swelling from the groove to apex, 1.8× as wide as its median length, moderately punctate and punctures much sparser, shallower and smaller than those on head and mesosoma, and with about 3 irregular rows of punctures at apical band; punctures of T2 slightly denser than those of T1, T2 (Fig. 37) without cave at median base, laterally somewhat depressed basally, with about 2–3 irregular rows of punctures at apical band, 1.23× as wide as its median length; maximum width of T2 1.15× that of T1, T2 swollen from base to subapex, not reflexed at apex, with apical margin normal, not prolonged mesally (Fig. 37); S2 lowered at median base; following metasomal segments normal.

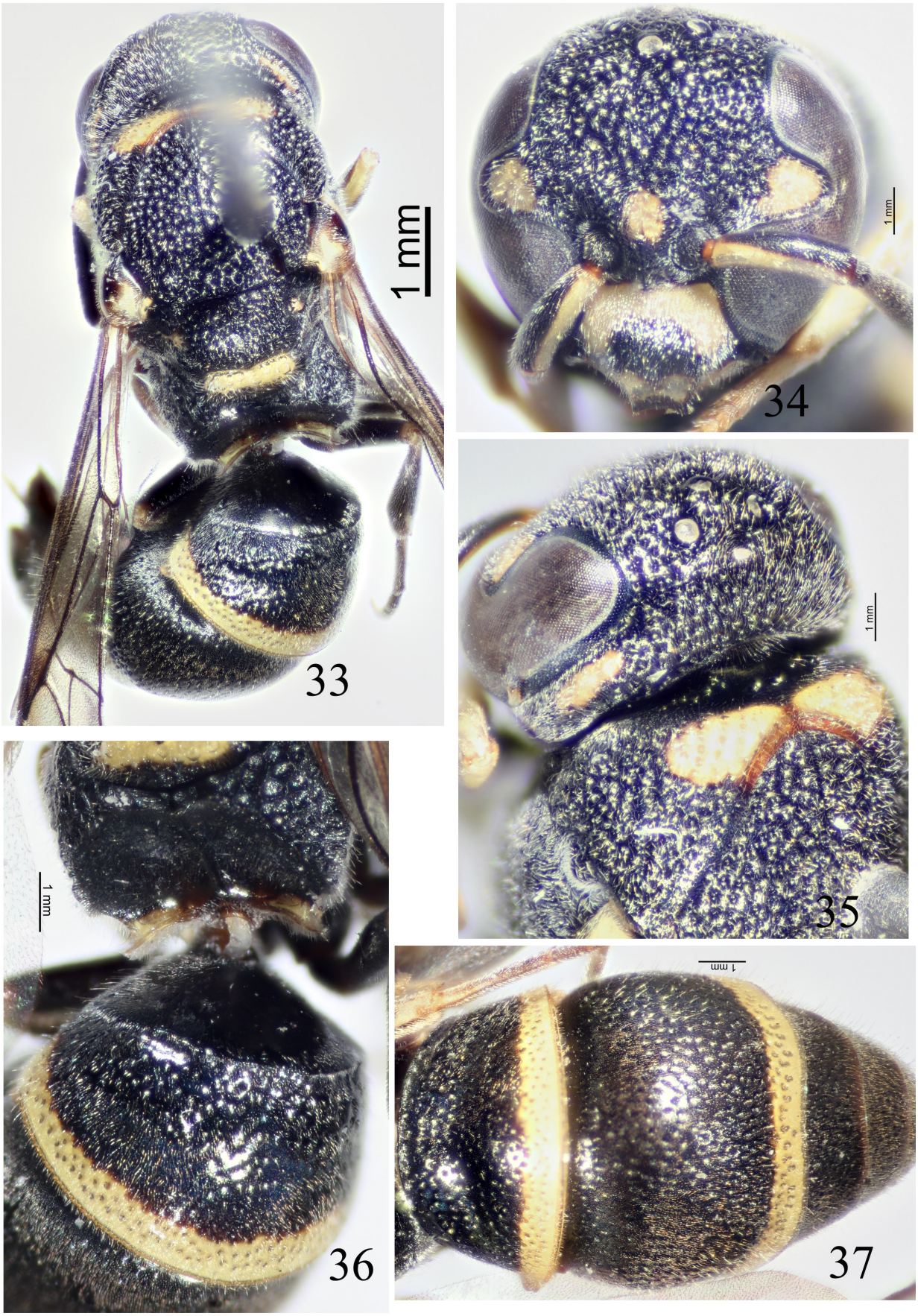
Body black, the following parts yellow: clypeus excluding median big and black spot and apical margin, mandible basally, a median spot on lower frons, apical spot in ocular sinus, a band on tempora, ventral side of scape, median and wide band (interrupted mesally) on dorsal surface of pronotum, anterior and posterior spots of tegula, parategula, metanotum except apex, submarginal carina, apical spots of fore and mid femora, spots of all tibiae, and apical bands of T1, T2 and S2; mandible except base, and tegula excluding yellow spots dark ferruginous.

Male. Unknown.

Distribution. Thailand.

Etymology. The specific name *discarinatus* is derived from two Latin words: *dis-* (=without) and *carinatus* (=carinate), referring to the evanescing occipital carina on the vertex.

FIGURES 26–32. *Parancistrocerus guangxiensis* **sp. nov.**, holotype, ♀. 26. Habitus, dorsal view; 27. Clypeus; 28. Head and pronotum, dorsal view; 29. T1, dorsal view; 30. Propodeum, dorsal view; 31. S2–S5, ventral view; 32. T2–T4, dorsal view.



FGURES 33–37. *Parancistrocerus discarinatus* **sp. nov.**, holotype, ♀. 33. Habitus, dorsal view; 34. Clypeus; 35. Head and pronotum, lateral view; 36. Propodeum and T1, dorsal view; 37. T1–T3, dorsal view.

***Parancistrocerus abyssicavus* Li & Carpenter, sp. nov.**
(Figs 38–43)

Material examined. Holotype, 1♀, Thailand, Chaiyaphum TatToneNP Entrance to Pa Eang waterfall, 15°57.52′N, 101°54.442′E, 297m, Malaise trap, 26.X–3.XI.2006, Tawit Jaruphan leg., T687, deposited in QSBG. Paratype: 1♀, Thailand, Nong Bua Lampoo Phu Kao-Phu Phan Kham NP E. of grdn. 16°48.44′N, 102°36.959′E, 247m, Malaise trap, 5–12.VII.2006, Rakkiat Singhatip leg., T87, deposited in AMNH.

Diagnosis. This species can be easily distinguished from other members of *Parancistrocerus* by having T2 basally with a large deep cavity mesally (Fig. 43).

Description. *Female* (Fig. 38). Body length 6.0–6.5 mm. Head as wide as long in frontal view (Fig. 39); clypeus densely with setae, sparsely punctate, clypeal maximum width 1.27× its length, moderately convex basally to middle and more or less plattened at subapical part, apex emarginated forming two lateral teeth, apical width 1.18x distance between antennal sockets; inter-antennal area with longitudinal and strong carina; frons moderately swollen, deeply and densely punctate, and reticulate, punctures on vertex and tempora somewhat sparse than those of frons; cephalic foveae present, unobvious and just slightly bigger than surrounding punctures; interocular distance 1.38× greater on vertex than at clypeus; POL as long as OOL; distance between anterior and posterior ocelli 1.29× diameter of anterior ocellus; occipital carina complete.

Median area of anterior face of pronotum polished (Fig. 40), with small and totally merged foveae mesally; laterally coriaceous, with dense setae and few scattered punctures; pronotal carina absent dorsally, present and strong laterally; posterior and lateral sides of pronotum, mesoscutum and scutellum strongly and densely punctate and reticulate, these punctures relatively bigger and deeper than those on head; mesoscutum somewhat swollen mesally, median length as long as its maximum width; scutellum medially with longitudinal groove; metanotum with sparse punctures; mesopleuron closely punctate except large area of epicnemium and posterior margin with pubescence; epicnemial carina present; metapleuron pubescence; dorsal face of propodeum coarsely punctate, interspaces between punctures with reticulate carinae, and forming horizontal area behind midline of metanotum (Fig. 41); posterior face of propodeum concave, with median carina and dense setae, punctate on upper part and with thin transverse striae on lower part; lateral sides of propodeum strongly punctate, interspaces between punctures mostly carinate; superior carina of propodeum well-developed and distinct especially at top, clearly separating horizontal dorsal face from posterior face, submarginal carina moderately projecting as lobe above propodeal valvula. Tegula smooth with minute punctures, rounded posteriorly, emarginated adjoining parategula and almost extending to apex of latter posteriorly.

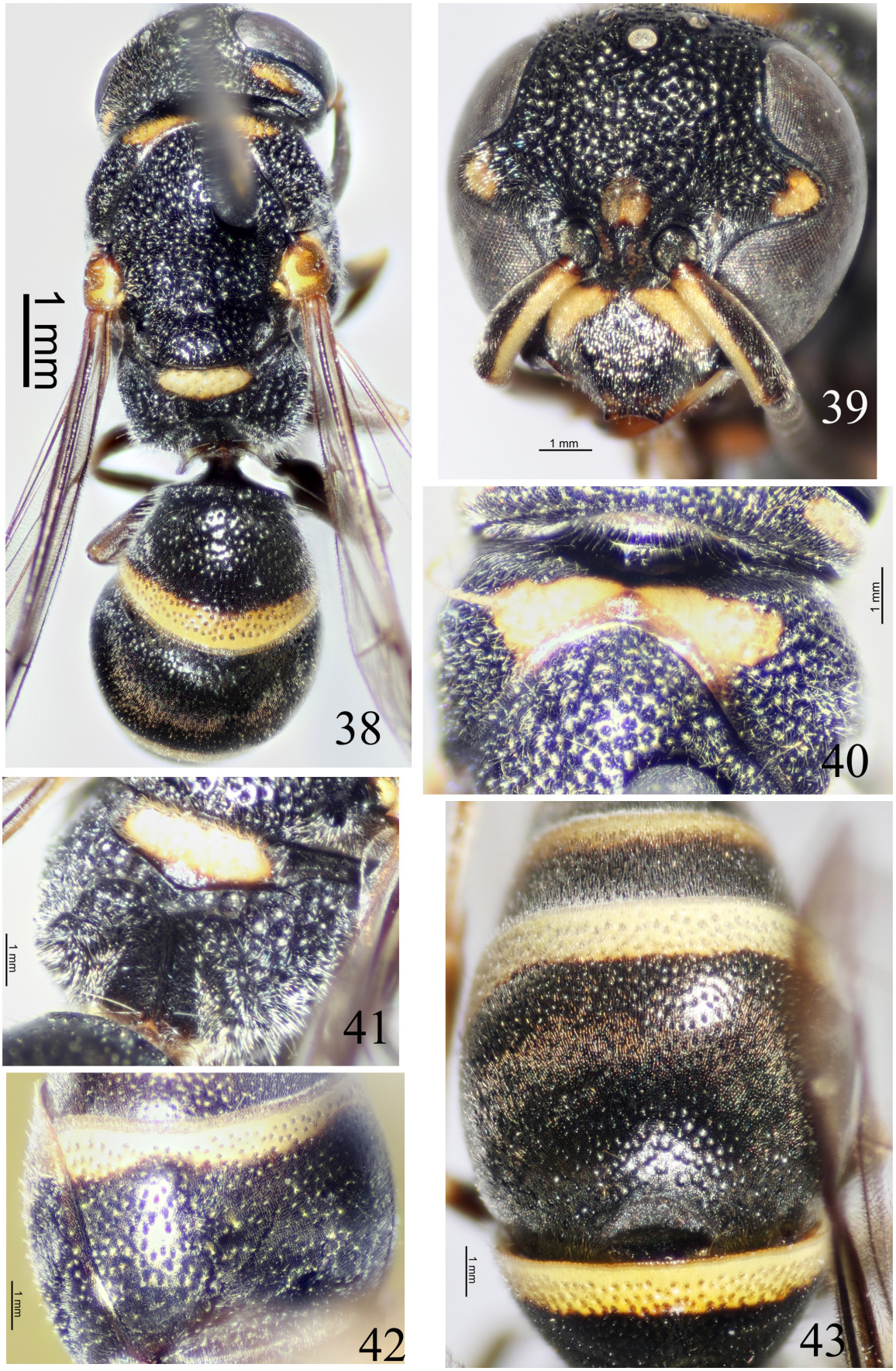
T1 with regular, strong transverse carina separating vertical face from dorsal face, transverse carina 0.81× as wide as dorsal horizontal face; vertical anterior face distinctly shorter than dorsal horizontal face, moderately with setae, and with few weak scattered punctures; dorsal face of T1 gradually swelling from base to apex, 1.42× as wide as its median length, densely punctate but punctures sparser, shallower and smaller than those on head and mesosoma, and with about 3–4 irregular rows of punctures at apical band; punctures of T2 similar to those of T1, T2 with a big and deep cave at median base (Fig. 43), with about 3–4 irregular rows of punctures at apical band, 1.08× as wide as its median length; maximum width of T2 1.13× that of T1, T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 slightly lowered at median base (Fig. 42); following metasomal segments normal.

Black. Following parts yellow: two lateral arched spots at base of clypeus (two spots connected in another specimen), basal spot on mandible, median spot on lower frons, apical spot in ocular sinus, a band on tempora, ventral side of scape, median and wide band on dorsal surface of pronotum, circle band of tegula, parategula, metanotum, apical spots on fore and mid femora, outer long band on all tibiae, wide apical band on T1, somewhat narrowed at sides; apical and wavy bands on T2 & S2; two small spots at apex of clypeus, and apical and thin bands (without apical band in another specimen) of both T3 and T4 brown yellow; mandible mostly, antenna ventrally except scape, tegula except yellow band, tibiae excluding yellow band, and all tarsi ferruginous to dark ferruginous.

Male. Unknown.

Distribution. Thailand.

Etymology. The specific name *abyssicavus* is derived from two Latin words: *abyss* (=deep) and *cavus* (=cave), referring to the deep cavity of T2.



FIGURES 38–43. *Parancistrocerus abyssicavus* **sp. nov.**, holotype, ♀. 38. Habitus, dorsal view; 39. Clypeus; 40. Pronotum, dorsal view; 41. Propodeum, dorsal view; 42. S2, ventral view; 43. T2–T3, dorsal view.

Remarks. The Nearctic species *P. vagus* (de Saussure) similarly has T2 basally with a large deep cavity mesally, which Bohart (1952) referred to as a median entrance to the acarinarium.

Parancistrocerus similiandrocles Li & Carpenter, sp. nov.

(Figs 44–51)

Material examined. Holotype, 1♀, China, Yunnan prov., Xishuangbanna State, Mengla County, Mengban Town, Mengha Village, 21°24'56.0"N, 101°18'40.4"E, 30.VII.2015, Wenkai Zhou, No. 10041011 (CQNU). Paratypes: 2♀♀, China, Yunnan prov., Xishuangbanna State, Gasa Town, Mandian Village, 21°57'02.7"N, 100°45'04.1"E, 3.VIII.2017, Tingjing Li & Pan Huang, Nos. 10041012, 10041013 (CQNU); 1♂, China, Yunnan prov., Puer City, Mojiang County, Mengnong Town, Xiaogandong Village, 23°417'13.9"N, 101°31'09.6"E, 23.VII.2015, Pan Huang & Yan Peng, No.10041014 (CQNU).

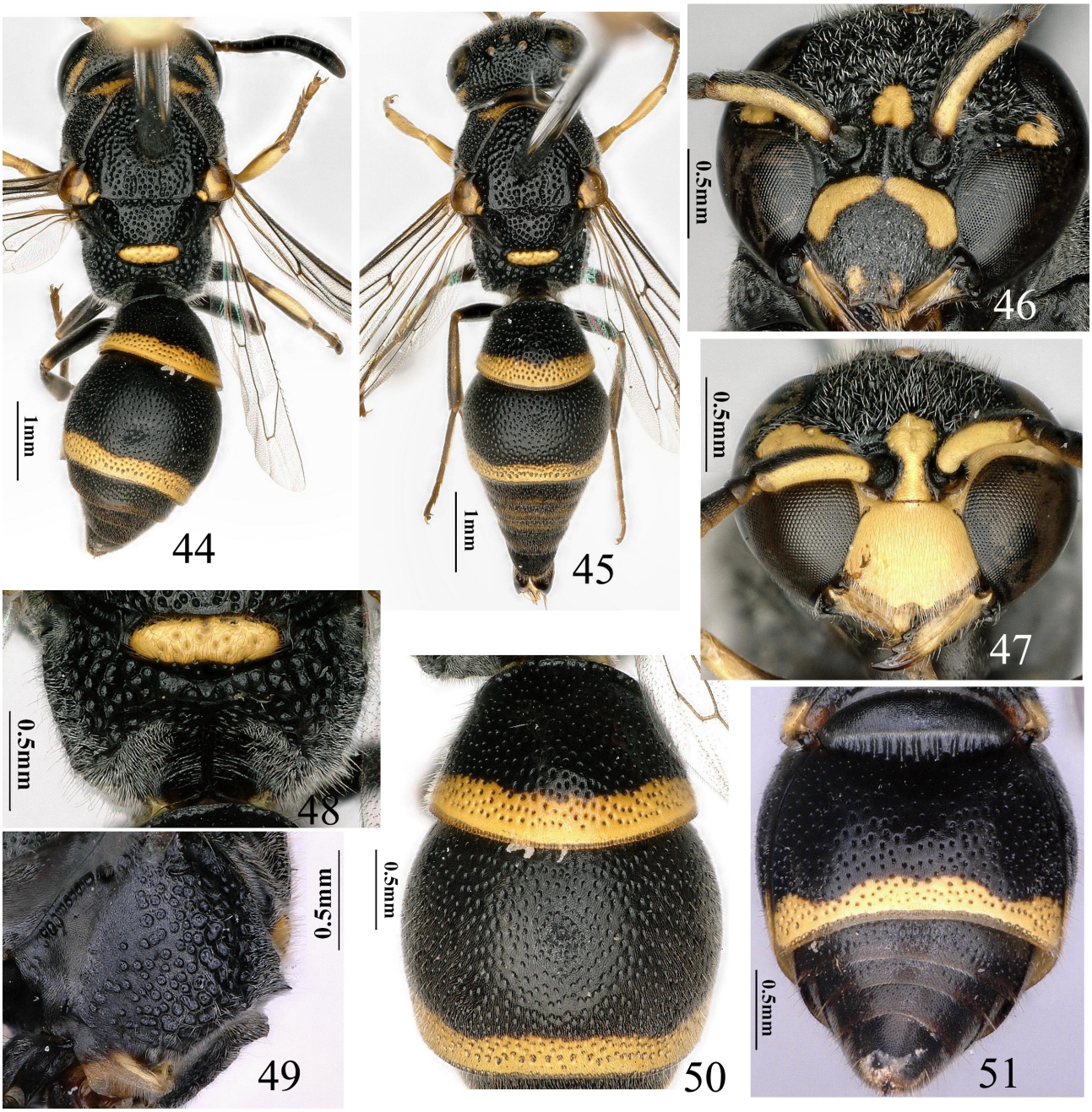
Diagnosis. This species is similar to the widespread species *P. androcles* (Meade-Waldo). It differs from *P. androcles* and other congeners by the following combination of characters: S2 strongly and sharply depressed basally (Fig. 51); apical yellow bands of T1 and T2 narrower (Fig. 50) than those in *P. androcles*; superior and submarginal carinae of propodeum not forming long and thick, round and black complete enclosure; and body without ferruginous markings.

Description. *Female* (Fig. 44). Body length 6.0–6.5 mm. Head slightly wider than long in frontal view; clypeus (Fig. 46) coriaceous, with minute punctures, clypeal maximum width 1.16× its length, somewhat convex, without plattened area at subapex, apex emarginated forming two lateral teeth, apical width 0.93× distance between antennal sockets; inter-antennal area with longitudinal carina; frons weakly swollened, densely and coarsely punctate and reticulate, punctures on vertex and tempora somewhat sparser and smaller than those of frons; cephalic foveae present, unobvious and just slightly bigger than surrounding punctures; interocular distance on vertex 1.39× that at clypeus; POL 1.28× OOL; distance between anterior ocellus and posterior ocelli 1.67× diameter of anterior ocellus; occipital carina complete.

Median sloping area of anterior face of pronotum polished, with two small and seperated foveae mesally, laterally with pubescence; pronotal carina just present laterally; posterior and lateral sides of pronotum, mesoscutum and scutellum irregularly punctate, interspaces these punctures not uniform, punctures generally sparser than those on frons and vertex of head; mesoscutum not swollen mesally, median length of mesoscutum as long as its maximum width; scutellum medially with longitudinal groove; metanotum with sparse punctures; mesopleuron closely punctured except large area of epicnemium and posterior margin coriaceous; epicnemial carina present; metapleuron coriaceous; dorsal face of propodeum (Figs. 48–49) forming horizontal area behind midline of metanotum and coarsely punctate, interspaces between punctures with reticulate carinae; posterior face concave, with median carina, with long and dense setae laterally, punctures on upper part and finely striate on lower part; lateral sides of propodeum coriaceous inside and irregularly punctate outside; superior carina of propodeum moderately developed and lamellate at top, clearly separating horizontal dorsal face from posterior face, submarginal carina moderately projecting as lobe above propodeal valvula. Tegula smooth with minute punctures, evenly rounded posteriorly, emarginate adjoining parategula and almost extending to apex of latter posteriorly.

T1 (Fig. 50) with regular, strong transverse carina separating vertical face from dorsal face, transverse carina 0.86× as wide as dorsal horizontal face; vertical anterior face distinctly shorter than dorsal horizontal face, with scattered punctures on the upper part, dorsal face 1.42× as wide as median length, moderately punctate and with about 3–4 irregular rows of punctures at apical band; T2 sparsely punctate, much sparser than those of T1, with about 2–3 irregular puncture rows apically, 1.32× as wide as median length; maximum width of T2 1.2× that of T1, T2 not reflexed at apex, with apical margin normal, not prolonged mesally; S2 (Fig. 51) obviously lowered basally; following metasomal segments normal.

Body black. Following parts yellow: two lateral arched spots basally and two small lateral apical spots of clypeus, mandible except apex, a median spot on lower frons, apical spot in ocular sinus, a band on tempora, ventral side of scape, median band on dorsal surface of pronotum, anterior and posterior spots of tegula, parategula, metanotum, apex of fore femur, long band of fore and mid tibiae, wide apical bands on T1, T2 and S2; apical margin of clypeus, apex of mandible, all tibiae excluding yellow markings and tarsi dark brown.

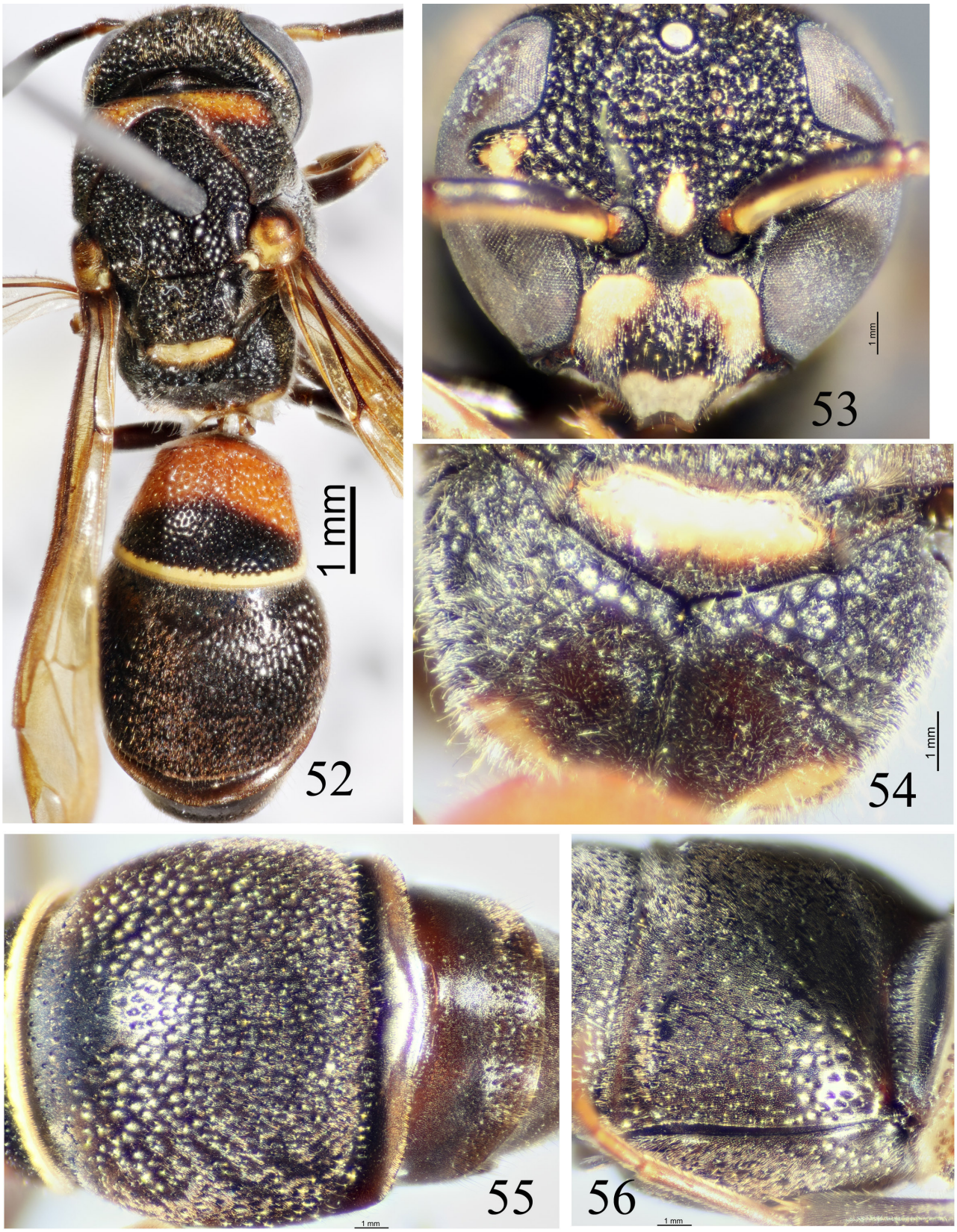


FIGURES 44–51. *Parancistrocerus similiandrocles* **sp. nov.**, 44, 46, 48–51, holotype, ♀; 44, 47, paratype, ♂. 44–45. Habitus, dorsal view; 46–47. Clypeus; 48–49. Propodeum, dorsal and lateral views; 50. T1–T2, dorsal view; 51. S2–S6, ventral view.

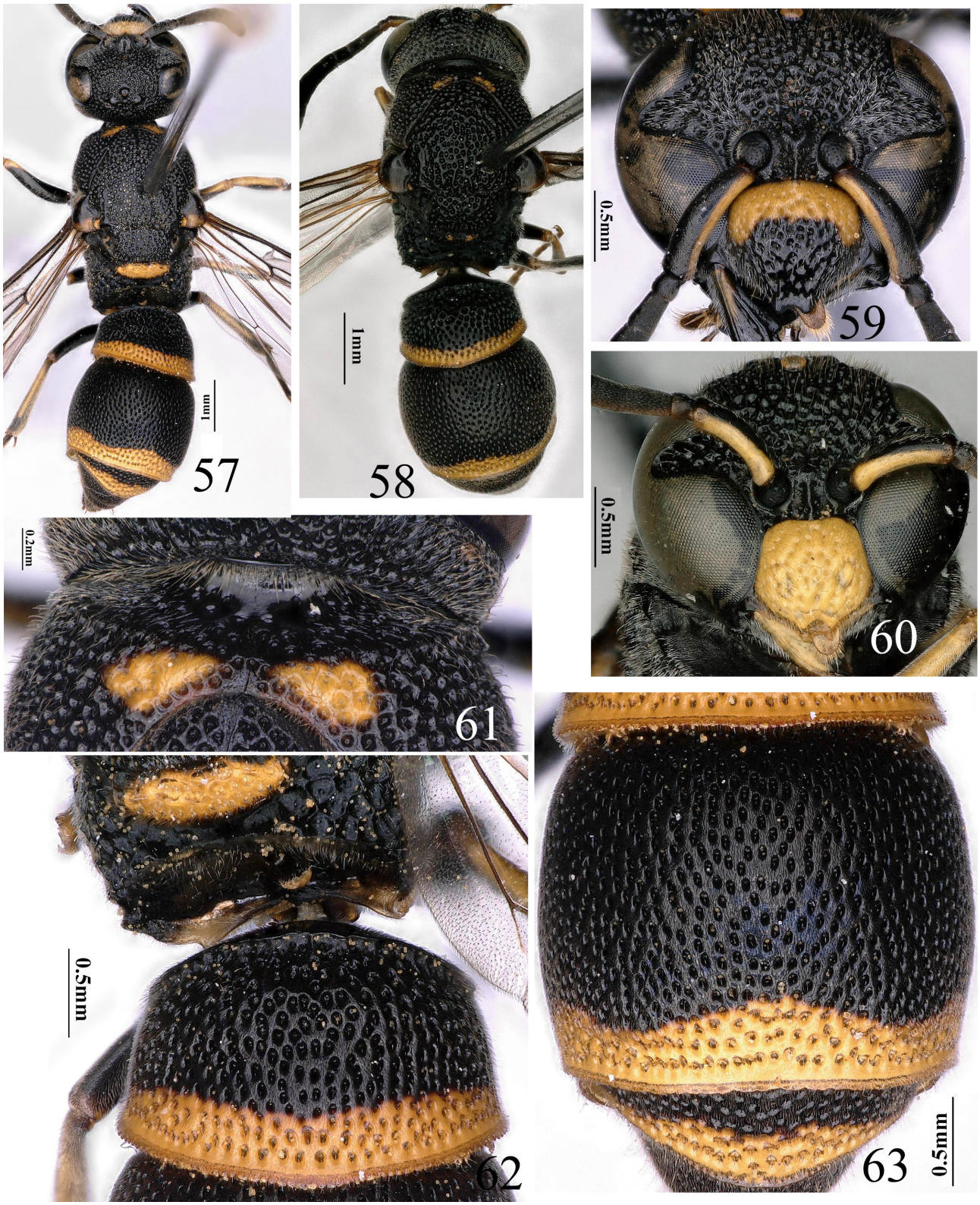
Male (Fig. 45). Body length 6.0 mm. Sculpture, punctuation, setae, and coloration as in female except as follows: clypeus (Fig. 47) entirely yellow,apical spot in ocular sinus much larger and extending to clypeal base, clypeus much wider, maximum width 1.24× its length, apex of A13 approaching base of A11, interocular distance on vertex 1.76× that at clypeus; POL 1.35× OOL; distance between anterior ocellus and posterior ocelli 1.23× as long as diameter of anterior ocellus; T1 1.32× as wide as its median length; T2 1.46× as wide as its median length; maximum width of T2 1.27× that of T1; punctures on T1 denser than those in female.

Distribution. China (Yunnan).

Etymology. The species is named after the similar species *P. androcles*, combined with the Latin word *similis* (=similar).



FIGURES 52–56. *Parancistrocerus incorruptus incorruptus*, ♀. 52. Habitus, dorsal view; 53. Clypeus; 54. Propodeum, dorsal views; 55. T2–T3, dorsal view; 56. S2, ventral view.



FIGURES 57–63. *Parancistrocerus samarensis*, 57, 59, 61–63, ♀; 58, 60, ♂. 57–58. Habitus, dorsal view; 59–60. Clypeus; 61. Pronotum, dorsal view; 62. Propodeum and T1, dorsal view; 63. T2–T3, dorsal view.

Parancistrocerus incorruptus incorruptus Giordani Soika, 1972
(Figs 52–56)

Parancistrocerus incorruptus Giordani Soika 1972: 101.
Parancistrocerus incorruptus incorruptus Giordani Soika: 1994: 155; Girish Kumar *et al.* 2016: 143, 154.

Diagnosis. *Female*. Body length 9.0–9.5 mm; body (Fig. 52) black, with yellow and ferruginous markings; T1 mostly red-ferruginous; propodeum partly red-ferruginous, with a yellow band on the postero-lateral margin; T2 without apical yellow band (Fig. 55); clypeus (Fig. 53) moderately punctate, clypeal maximum width 1.07× its length, apex broadly emarginated, apical width longer than (1.33×) distance between antennal sockets and slightly less than basal width of clypeus; superior carina of propodeum (Fig. 54) poorly developed, and indistinctly lamellatedorsally;T2 (Fig. 55) swollen on sides, with strong preapical groove, strongly punctate, followed by wide and long translucent lamella, strongly reflexed and prolonged mesally; and S2 slightly lowered basally (Fig. 56).

Material examined. 1♀, Thailand, Nakhon Nayok Khao YaiNP nr Trning Ctr.2, 14°24.515′N, 101°22.432′E, 750m, Malaise trap, 12–19.II.2007, Wirat Sukho leg. T2246 (AMNH).

Distribution. Thailand (new record); India.

Parancistrocerus samarensis (von Schulthess, 1934)
(Figs 57–63)

Odynerus samarensis von Schulthess 1934: 73; Giordani Soika 1986: 126.
Ancistrocerus samarensis: Baltazar 1966: 301.
Parancistrocerus samarensis: Giordani Soika 1986: 125; 1993: 20; 1994: 153, 160; Gusenleitner 2010: 695; Girish Kumar *et al.* 2016: 155.

Diagnosis. Body length 7.0–8.0 mm in female (Fig. 57), 6.0–7.0 mm in male (Fig. 58); clypeus in female with arched yellow band basally (Fig. 59) and entirely yellow in male (Fig. 60), clypeal apex narrow, apical width of clypeus shorter than distance between antennal sockets, and clypeus coarsely punctate; median sloping area of anterior face of pronotum punctate (Fig. 61); apex of T3 prolonged mesally (Fig. 63); and T1–T3 coarsely and densely punctate, punctures of T1 denser and bigger than those of other metasomal parts (Fig. 62).

Material examined. 1♀1♂, China, Guizhou prov., Kaili City, Leishan County, Datang Town, Xinqiao Village, 23.VI.2015, Tingjing Li & Yan Peng (CQNU); 1♀, China, Guizhou prov., Tongren City, Jiangkou County, outskirts, 27.VI.2015, Zhenxia Ma & Yan Peng (CQNU); 1♀, China, Sichuan prov., Leshan City, Emeishan County, Dawei Town, 13.VIII.2011, Tingjing Li (CQNU); 1♂, China, Guangxi prov., Xingan County, Huajiang Town, Gaozhai Village, 19.VII.2015, Tingjing Li (CQNU).

Distribution. China (new record); Laos; Philippines.

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