

New species of parasitoids on *Perileucoptera coffeella* (Guérin-Menèville) (Lepidoptera, Lyonetiidae) from Brazil

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New species of the genera *Stiropius* Cameron, 1911 (Rogadinae), *Centistidea* Rohwer, 1914 (Miracinae) and *Orgilus* Haliday, 1833 (Orgilinae) reared from *Perileucoptera coffeella* (Guérin-Menèville, 1842), from Sumaré, S.P., Brazil are described and illustrated.

Introduction

Recently, I received for identification specimens of the genera *Stiropius* Cameron, 1911 (Rogadinae), *Centistidea* Rohwer, 1914 (Miracinae), and *Orgilus* Haliday, 1833 (Orgilinae), which had been reared from the coffee leaf-miner, *Perileucoptera coffeella* (Guérin-Menèville, 1842), at Sumaré, S.P., Brazil. The three species are described below.

The tribe Stiropiini van Achterberg, 1993 (Braconidae: Rogadinae) has a wide distribution in the New World, especially in the Neotropics. They are endoparasitoids of (leafmining) larvae of Lyonetiidae and Gracillariidae using the mummified host larva or prepupa as shelter during pupation. The emergence is from near the head end of the host (Whitfield, 1988). They are characterized by the granulate sculpture of the body and the long median carina of the propodeum connected to a medium-sized areola (van Achterberg, 1993).

Studies in the Miracine genus *Centistidea* (Chen et al., 1997) have been difficult because of the paucity of available specimens. Many Miracinae have been reared, always from leafminers, including those on coffee (Muesebeck, 1937). The larvae are endoparasitoids; the adults emerge from the host cocoon. Brues (1912) described *M. brasiliensis* from Brazil; Muesebeck (1922) presented a synopsis of the six North American species of *Mirax* s.l.; Wilkinson (1936) described *Mirax leucopterae* which was reared from *Leucoptera* species at Bukola (Tanzania) and Muesebeck (1937) described the first species, *M. insularis* recorded from the West Indies.

The Orgilinae are a small subfamily of the Braconidae with about 200 described species usually 4-7 mm long. Few genera are known and most are widespread. The *Orgilus* species are worldwide in distribution; most of them are presumably internal parasitoids of leaf-miner lepidopterous larvae belonging to Gelechiidae, Coleophoridae, Oecophoridae, Psychidae, Pyralidae, Gracillariidae and Tortricidae. Many species, especially from the Neotropics, are undescribed. The Nearctic species were revised by Muesebeck (1970) and some New World species were described by van Achterberg (1987). Ashmead (1894), described *O. pallidus* from St. Vincent; Muesebeck (1956) described *O. gossypii* reared from *Pectinophora gossypiella* larvae from Reconquista (Argentina) and in 1967 he described *O. lepidus* reared from *Phthorimaea oper-*

culella larvae from Balcarce (Argentina) on *Chenopodium* from Montevideo, Uruguay, and from the same host from Moreno, California.

Stiropius reticulatus spec. nov.
(figs 1-6)

Material.— Holotype, ♂ (DCBU), "Universidade Federal de São Carlos, São Paulo, Brazil, Sumaré, 4.viii.1994, A. Watanabe, on larvae of *Perileucoptera coffeella*". Paratypes: 2 ♂♂ (DCBU, RMNH), topotypic.

Holotype, ♂, length of body and of fore wing 2.2 mm.

Head.— Antennal segments 13; length of third segment 1.1 times fourth segment; length of third segment 6.0 times its width; pedicellus normal, slender; length of maxillary palp 0.8 times height of head; length of eye in dorsal view 3.0 times temple; temples subparallel behind eyes, narrowed posteriorly; OOL:diameter of ocellus:POL = 2:1:1; face and vertex granulate; malar suture present; clypeus large, its ventral margin just below lower level of eyes; length of malar space equal to basal width of mandible (fig. 1).

Mesosoma.— Length of mesosoma 1.6 times its height; side of pronotum superficially reticulate coriaceous; precoxal sulcus absent; mesopleuron superficially granulate; pleural sulcus nearly present; metapleuron reticulate; 0.3 of notauli impressed, narrow, smooth; mesoscutum distinctly reticulate coriaceous (fig. 2); surface of propodeum distinctly reticulate coriaceous anteriorly, largely smooth posteriorly, areola wide and antero-laterally angulate and median carina 0.5 times length of propodeum in dorsal view (fig. 3).

Wings.— Fore wing (fig. 4): r about as long as width of pterostigma and emerging medially from pterostigma; r:3-SR: SR1 = 6:3:30; 1-CU1:2-CU1 = 3:12; first subdiscal cell closed apically; subparallel; CU1b short; 2-SR:3-SR:r-m = 10:3:8. Hind wing: M+CU:1-M = 10:12.

Legs.— Legs reticulate coriaceous; length of femur, tibia and basitarsus of hind leg 3.8, 11.6 and 7.0 times their width, respectively; hind femur, hind tibia and hind basitarsus slender; fore telotarsus slightly enlarged.

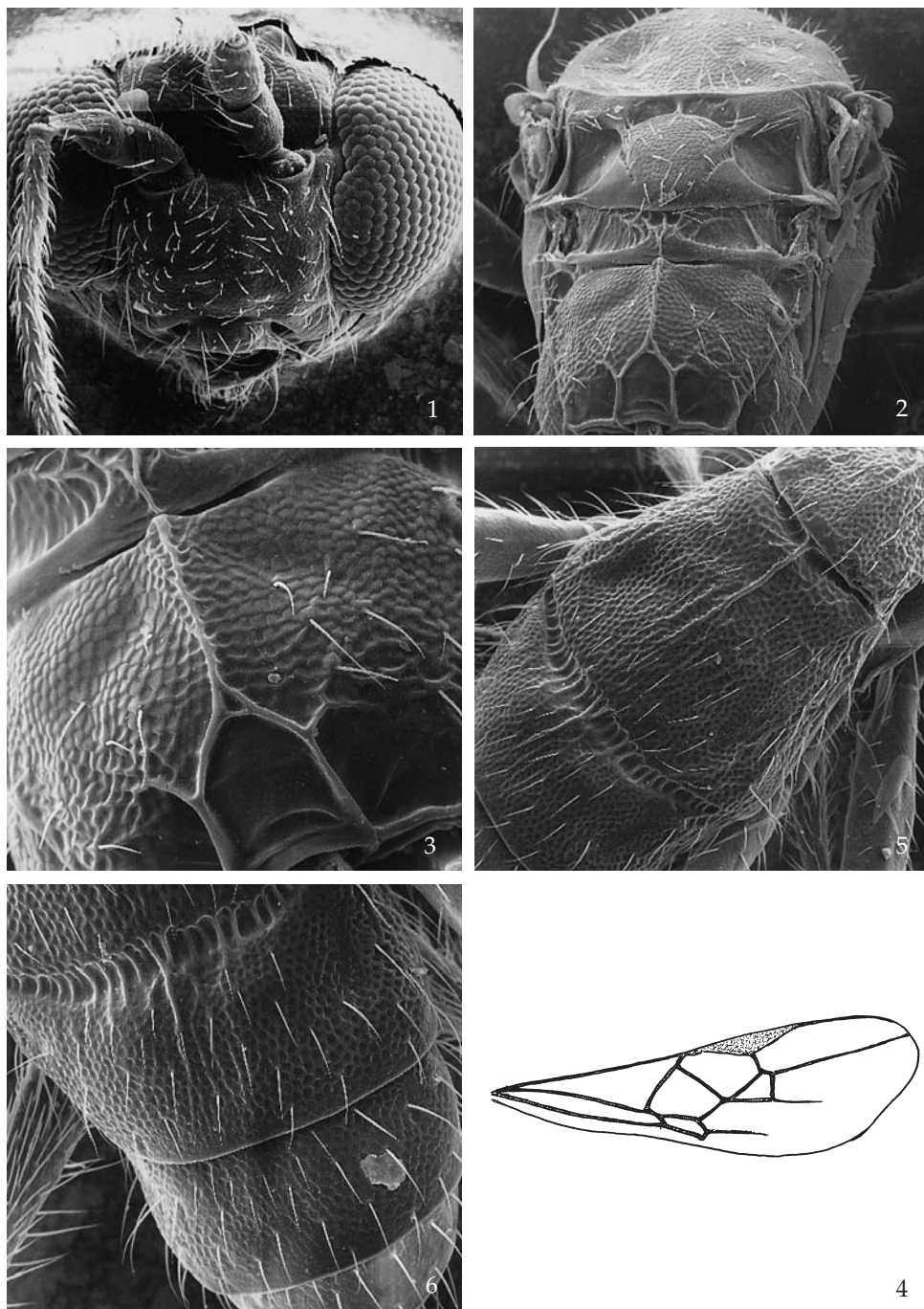
Metasoma.— Length of first tergite 0.7 times its apical width, its surface reticulate coriaceous, with nearly complete median carina; second and third tergites distinctly reticulate coriaceous; second and third tergites with nearly complete median carina (fig. 5); second metasomal suture wide, crenulated; fourth tergite nearly flat, granulates; fifth and sixth tergites hardly exposed (fig. 6).

Colour.— Yellowish; stemmaticum black; head and flagellum brown; parastigma largely dark brown; palpi, tegulae, metasoma, veins, pterostigma pale yellowish; wing membrane hyaline.

Distribution.— Brazil.

Etymology.— Named *reticulatus* because the sculpture of the body is predominantly reticulate coriaceous.

Note.— Closely related to *S. letifer* (Mann, 1872), but *S. reticulatus* differs by having the second submarginal cell more narrow and by having the metasoma reticulate coriaceous. From *S. prunicola* (Whitfield, 1988) *S. reticulatus* differs by the less narrow



Figs 1-6, *Stiropius reticulatus* spec. nov. 1, head; 2, mesosoma; 3, propodeum; 4, fore wing; 5, first-third metasomal tergites; 6, third-fifth tergites.

second submarginal cell, having ratio of veins $r:3-SR = 2:1$, and by the reticulate coriaceous sculpture of the metasoma.

Centistidea striata spec. nov.
(figs 7-11)

Material.— Holotype, ♀ (DCBU), "Universidade Federal de São Carlos, São Paulo Brazil, Sumaré, 4.viii.1994, A. Watanabe, on larvae of *Perileucoptera coffeella*". Paratype: 1 ♂ (DCBU), topotypic.

Holotype, ♀, length of body 1.6 mm; fore wing 1.8 mm.

Head.— Slightly wider than thorax, mostly smooth and shining, occiput striate; antennae about as long as body, first flagellar segment distinctly longer than second segment (fig. 7); vertex without a median groove from median ocellus to occiput; ocellocular line longer than one side of ocellar triangle (fig. 8).

Mesosoma.— Anteriorly notauli impressed on less than anterior third of mesoscutum, largely absent on disc (fig. 9); scutellar sulcus deep, not foveolate, mesoscutum and scutellum weakly punctate; mesopleuron smooth; propodeum with a complete median carina and a few irregular transverse rugae on either side of carina; lateral margin of propodeum sharply carinate (fig. 9).

Wings.— Vein SR_1 almost completely obliterate (fig. 10).

Metasoma.— Sessile, shorter than head and thorax, smooth; sclerotized part of first tergite broadening at apex; sclerotized part of second tergite reduced to a very narrow longitudinal strip which is widened apically; first and second laterotergites membranous and finely longitudinally striate; third tergite twice as broad as long and finely longitudinally striate basally (fig. 11).

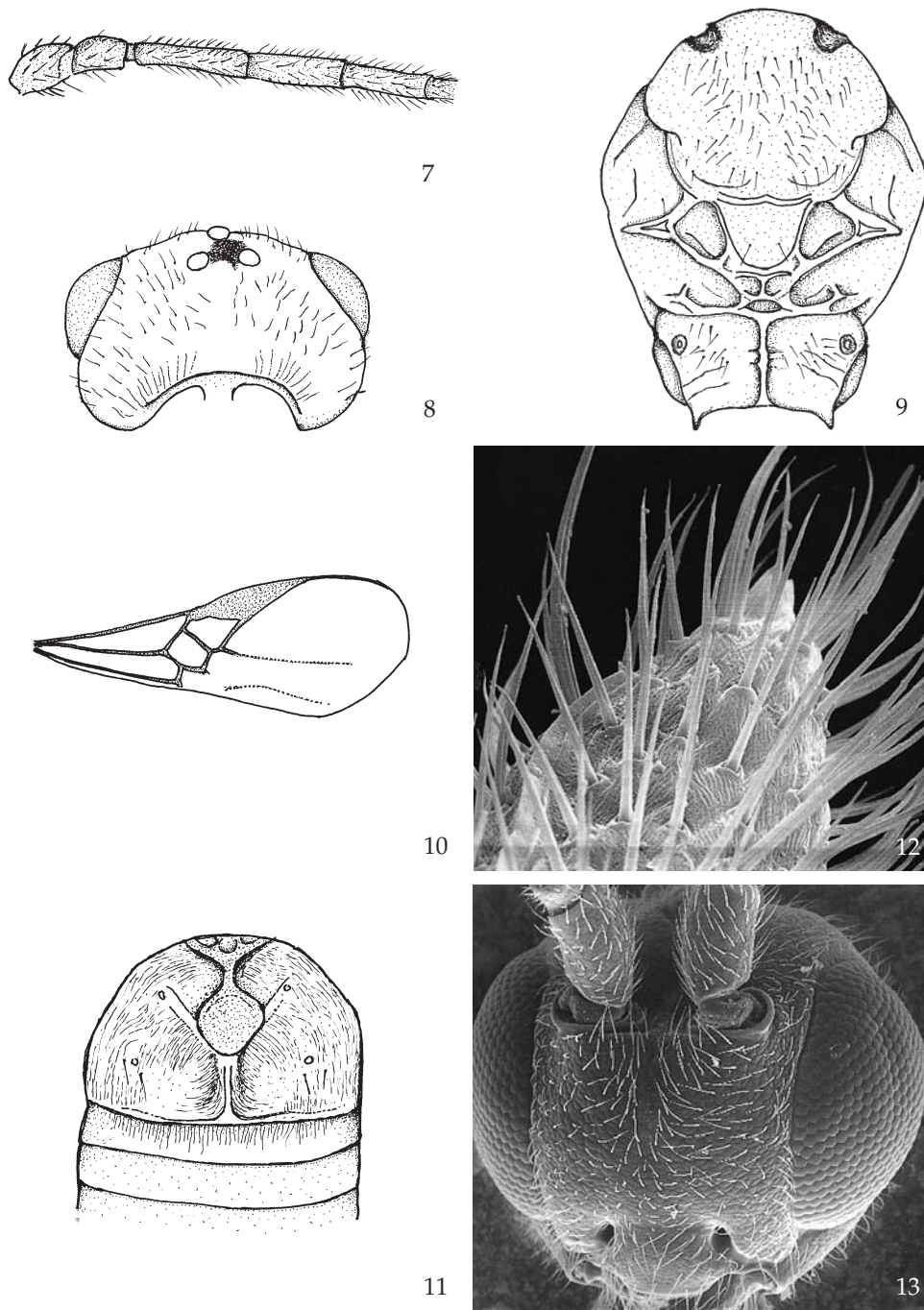
Colour.— Head and thorax honey-yellow; stemmaticum black, antennae brownish, a little paler basally, tegulae yellow; wings hyaline, veins and pterostigma brown; legs, including all coxae, yellow; two basal abdominal segments yellow; third abdominal segment dark brown laterally and near posterior margin; following segments dark brown near posterior margin; tarsi blackish apically.

Male.— Similar to female.

Distribution.— Brazil.

Etymology.— Named *striata* because of the striation of the occiput and the metasomal tergites.

Note.— Differs from *C. texana* (Muesebeck, 1922) **comb. nov.** (to which it appears to be most closely related) by the less completely sculptured propodeum; the much shorter stub of the third cubital abscissa; the third tergite finely longitudinally striate; the mostly yellowish thorax; and the antennae and stemmaticum infusate. From *C. insularis* (Muesebeck, 1937) **comb. nov.**, it is separated by the yellowish mesosoma; the length of the side of ocellar triangle in comparison with the ocellocular line and the colour of the third and following tergites. From *M. brasiliensis* Brues, 1912, this species is separated by the colour of the metasoma, the sculpture on the scutellar sulcus and by the size of the notauli.



Figs 7-11, *Centistidea striata* spec. nov.; figs 12-13, *Orgilus niger* spec. nov. 7, antenna; 8, occiput; 9, mesosoma; 10, fore wing; 11, first-fourth metasomal tergites, 12, apex of antenna; 13, frons.

Orgilus niger spec. nov.
(figs 12-25)

Material.— Holotype ♀, (DCBU), "Universidade Federal de São Carlos, São Paulo, Brazil, Sumaré, 4.viii.1994, A. Watanabe, on larvae of *Perileucoptera coffeella*". Paratypes (5 ♀♀, 4 ♂♂): 3 ♀♀, 2 ♂♂ (DCBU) and 2 ♀♀, 2 ♂♂ (RMNH), topotypic.

Holotype, ♀, length of body 2.0 mm; fore wing 2.3 mm.

Head.— Antennal segments 25, third segment as long as fourth segment, length of first and last segments 0.07 mm, 0.10 mm and 2.0 times their width, respectively; antennal apex with short apical spine (fig. 12); length of maxillary palp 1.1 times height of head; length of eye in dorsal view 3.0 times temple; POL:diameter of ocellus:OOL = 3:2:5; face, frons and vertex granulate (figs 13, 14); occipital carina present laterally (fig. 15); clypeus convex and granulate; length of malar space 1.5 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.6 times its height; pronotal sides coriaceous; prepectal carina reaching anterior margin of mesopleuron; notauli complete, finely crenulate (fig.16); precoxal sulcus shallowly impressed and coriaceous; mesoscutal lobes and scutellum coriaceous (figs 16, 17); surface of propodeum granulate and with no carinae medially (fig. 18).

Fore wing.— r:SR1+3-SR:2-SR = 3: 34: 7; cu-a interstitial (fig.19).

Legs.— Hind coxae coriaceous; tarsal claws with lobe, setose (fig. 20); length of femur, tibia and basitarsus of hind leg 4.0, 8.0 and 7.5 times their width, respectively; length of inner hind tibial spur 1.0 mm and 0.3 times hind basitarsus (fig. 21); apex of hind and middle tibiae with some pegs apically.

Metasoma.— First tergite as long as its apical width (fig. 22), its surface coarsely rugose-punctate with dorsal carinae distinct in basal 0.3 of tergite (figs 22, 23); second tergite and middle of third tergite coarsely rugose-punctate (fig. 24); second suture finely crenulate (fig. 24); remainder of metasoma smooth (fig. 25); length of ovipositor sheath 0.3 times fore wing.

Colour.— Blackish; antennae brown, ovipositor sheaths blackish, fore and middle legs yellow, last tarsomere blackish, maxillary and labial palps yellow, apex of hind coxae whitish; wing membrane hyaline, pterostigma and veins brown.

Male.— Similar to female.

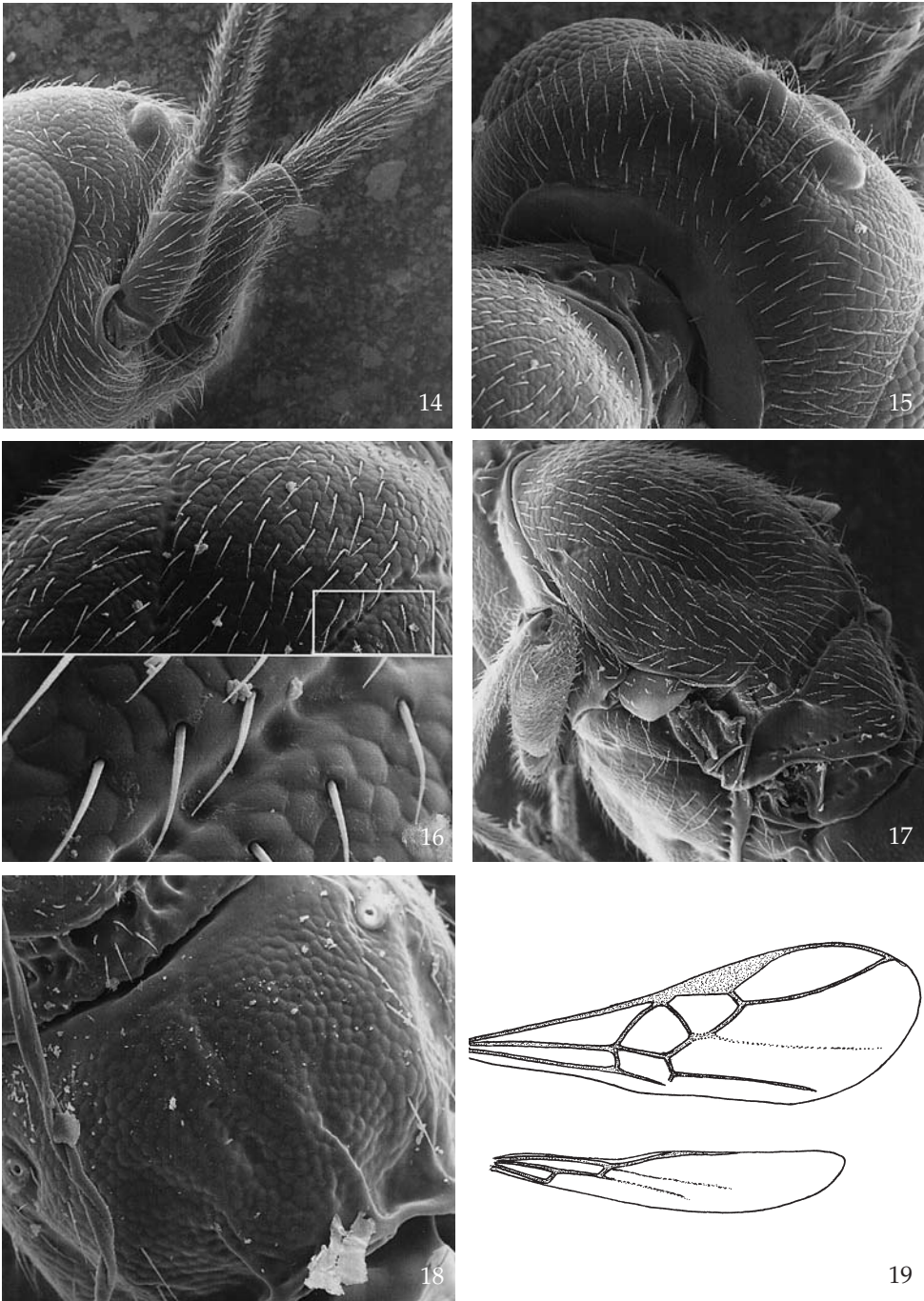
Distribution.— Brazil.

Etymology.— Named *niger* because the blackish colour of the body.

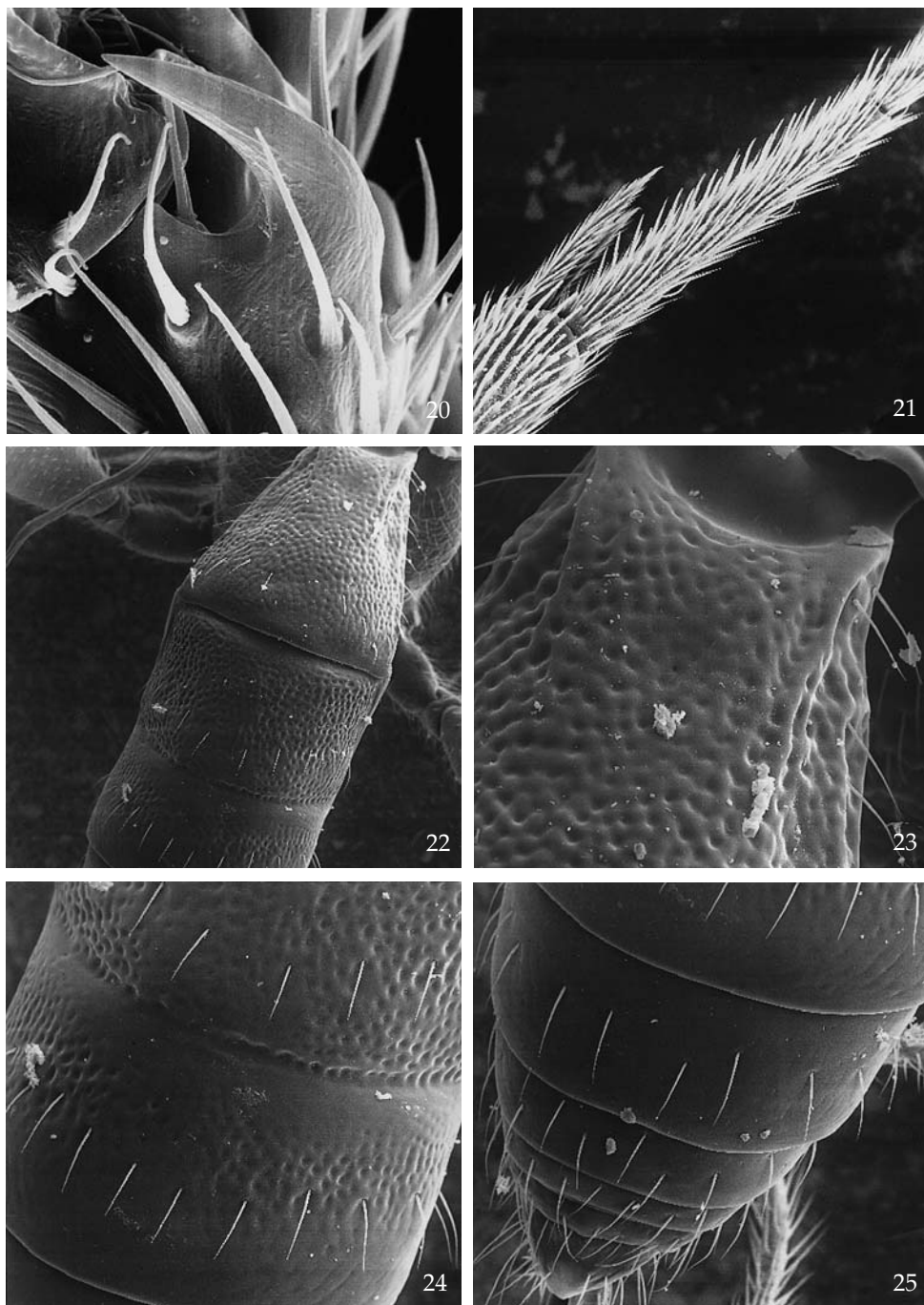
Note.— This species can be distinguished from the other Neotropical species of *Orgilus* s.s. (*O. pallidus* Ashmead, 1894, *O. gossypii* Muesebeck, 1956, and *O. lepidus* Muesebeck, 1967) mainly by its colour.

Acknowledgements and abbreviations

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Figs 14-19, *Orgilus niger* spec. nov. 14, head; 15, occiput; 16, mesoscutum; 17, mesosoma; 18, propodeum; 19, wings.



Figs 20-25, *Orgilus niger* spec. nov. 20, tarsal claw; 21, hind tarsus; 22, first-third metasomal tergites; 23, first metasomal tergite; 24, second-third metasomal tergites; 25, apical metasomal tergites.

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DCBU stands for the Universidade Federal de São Carlos, Departamento de Ecologia e Biologia Evolutiva, São Carlos, S.P., Brazil and RMNH for the National Museum of Natural History, Leiden, The Netherlands.

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