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NEW HYPOPI PHORETIC ON BRASILIAN COLEOPTERA AND HYMENOPTERA  
(ACARI: ASTIGMATA)

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----- ABSTRACT—Seven new species and three new genera of hypopi are described from Brazilian insects: *Bothyanoetus pereirai* n. g., n. sp. (Anoetidae) from *Bothynus deiphobus* (Coleoptera); *Scolianoetus ramozae* sp. n. (Anoetidae) from *Passalus* sp. (Coleoptera); *Histiostoma tanypus* sp. n. (Anoetidae) from an unidentified Vespidae (Hymenoptera); *Dichotomiopus biaggioi* n. g., n. sp. (Saproglyphidae) from *Dichotomius anaglypticus* (Coleoptera); *Horstia brasiliensis* n. sp. and *H. amplisucta* sp. n. (Acaridae) both from *Bombus* sp. (Hymenoptera); *Spinacaropus brasiliensis* n. g., n. sp. (Acaridae) from an unidentified Vespidae (Hymenoptera). -----

During a stay in Brasil, the junior author collected numerous hypopi on various Coleoptera and Hymenoptera. In a previous paper we described the life-cycle of a new species *Congovidia brasiliensis* Fain & Camerik (1977) (Astigmata) living in biological association with a Brazilian wasp, *Trypoxylon aestivale*. The present paper is devoted to the description of seven new species and three new genera belonging to different families of Astigmata.<sup>3</sup>

The holotypes of the new species which are described here have been deposited in the Institut royal des Sciences naturelles de Belgique; paratypes are deposited in various Institutions of Sao Paulo and Rio de Janeiro.

FAMILY ANOETIDAE Oudemans, 1904

Genus *Scolianoetus* Fain, 1974

This genus is characterized by the situation of  $\omega 1$  on the tarsus I instead of on tibia I as in the other genera of Anoetidae. So far 4 species have been described. *S. ramozae* sp. n. resembles *S. scheucherae* Fain, 1974, and *S. brasiliensis* Fain, 1974 by the shape of the palposoma. It is however distinguished from these species by the shorter length of the dorsal setae and of the smaller size of the ventral conoids.

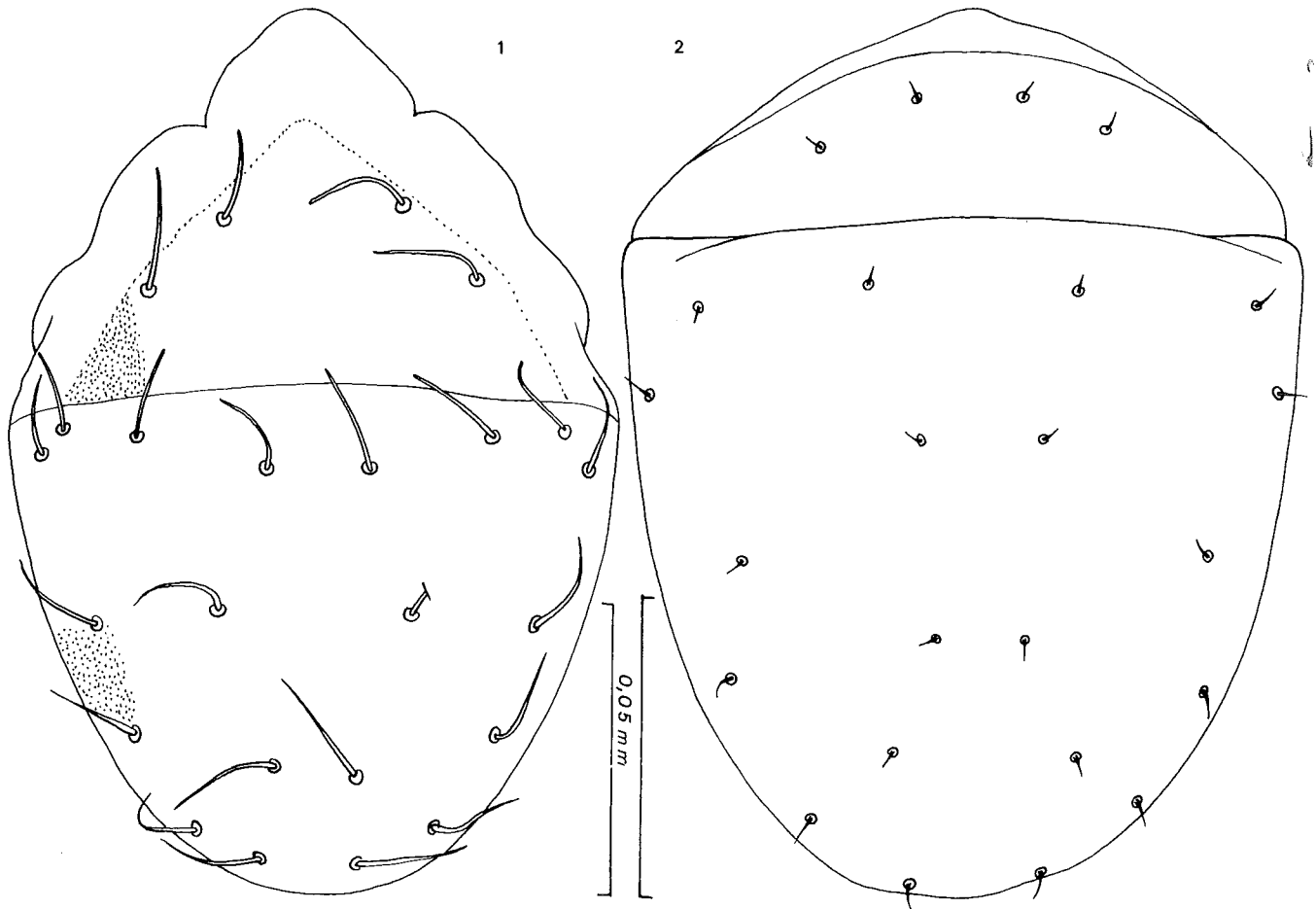
*Scolianoetus ramozae* spec. nov.

This species is known only from the hypopus. It is named for Sr Maria de Fatima Ramoz, University of Sta Ursula, Rio de Janeiro, who helped us in collecting our material.

HYPOPUS (Fig. 1, 3, 4)—Holotype 149 $\mu$  long and 105 $\mu$  long. Anterior extremity broadly rounded. The *vi* and *ve* are absent. Dorsal setae relatively thin and short, the propodosomal setae being slightly thicker than the hysterosomal setae. Palposoma as in *S. scheucherae*, slightly wider at its base than long, with two rather long solenidions with apex curved inwards, and one pair of very small setae. Epimera I not visible, a faint sternum is present. Suctorial plate as in *S. scheucherae* except that the lateral conoids are distinctly more anterior. The setae *cx I*, *cx III* and *gp* are modified into conoids, smaller than in *S. scheucherae*. Legs and leg chaetotaxy as in *S. scheucherae*. Solenidions of tibia I and II distinctly shorter than in *S. scheucherae*; the solenidion of tibia II is shorter than the width of the tibia.

HOST AND LOCALITY—On *Passalus* sp., (Passalidae) from Rio de Janeiro, 9-XII-1975 (N° 176). Holotype and one paratype.

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*Scolianoetus ramozae* sp. n. : holotype hypopus, dorsum; Fig. 2. *Bothyanoetus pereirai* sp. n. : holotype hypopus, dorsum.

Genus *Bothyanoetus* gen. nov.

**DEFINITION**—Body in broad oval. Dorsal surface with a secondary transverse fold between the sejugal furrow and the anterior extremity. Dorsum bearing very thin and short setae. **VENTER**—Epimera I not distinct, epimera II very thin, poorly visible and free; epimera III and IV fused in the midline. Setae *cx I* and *gp* transformed into conoids. The *cx III* is a thin seta. Suctorial plate wider than long, with posterior suckers much larger than the anterior ones; the conoids are placed on a concave line. Legs I-II much thicker than legs III-IV. Tarsi I-III ending into a wide foliate seta. Tarsus IV ending into a thick seta. A small claw is visible on tarsi I-II, other tarsi without a claw. Palposoma subterminal, as long as wide and divided in two anterior lobes bearing thick and short inside-curved *alpha* solenidions. Leg I with  $\omega l$  situated in the apical third of tibia I.

Type species— *Bothyanoetus pereirai* spec. nov.

This genus resembles superficially *Scolianoetus* but differs from it mainly by the situation of the solenidia  $\omega l$ , in the apical third of tibia I.

*Bothyanoetus pereirai* spec. nov.

This species is named for Dr. F. S. Pereira, Instituto Biologico, Sao Paulo, who identified most of our Coleoptera, hosts of our material.

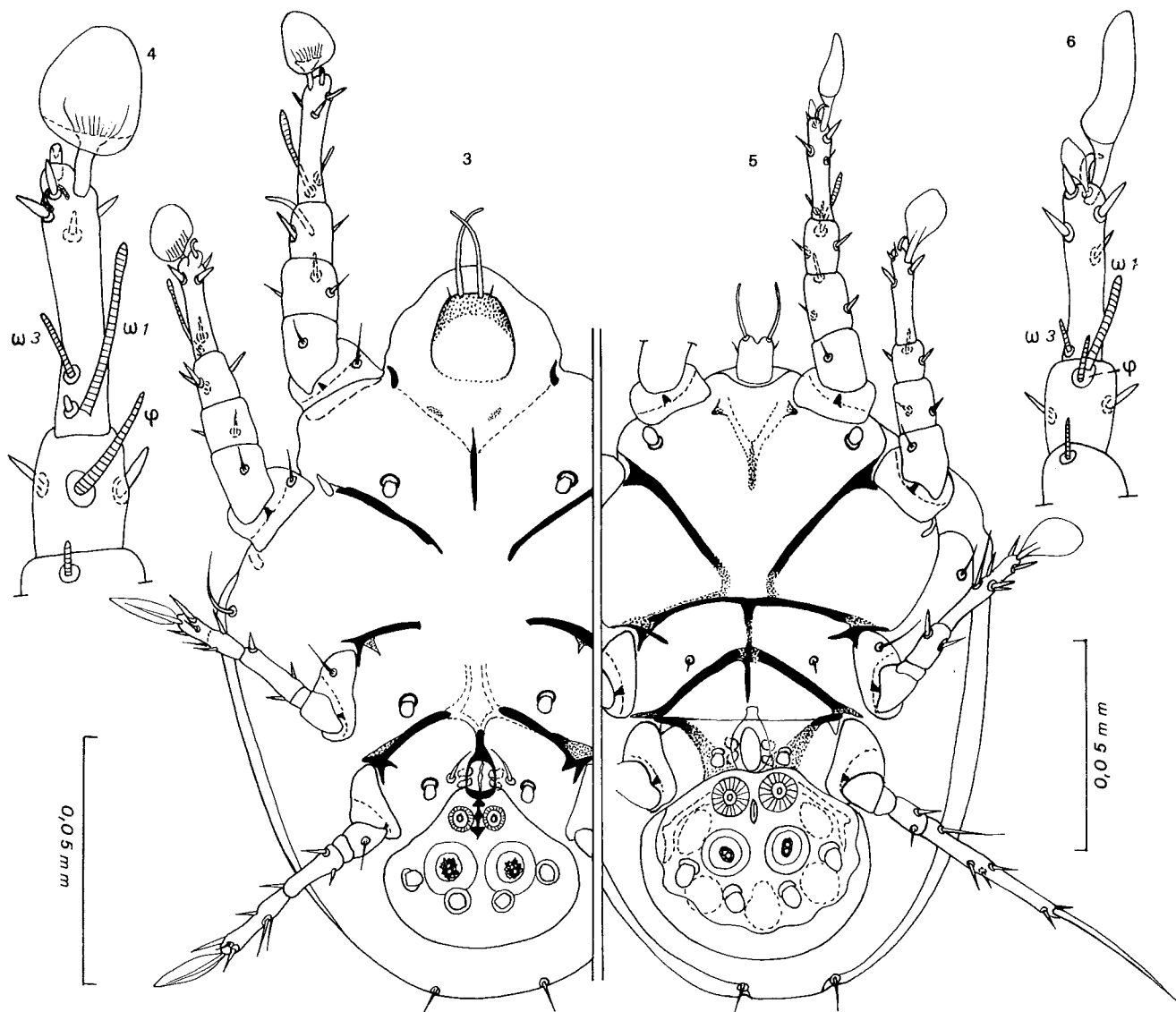


Fig. 3-4, *Scolianoetus ramozae* sp. n. : holotype hypopus; 3, venter; 4, tarsus and tibia I dorsally; Fig. 5-6, *Bothyanoetus pereirai* sp. n. : holotype hypopus; 5, venter; 6, tarsus and tibia I dorsally.

**HYPOPUS** (Fig. 2, 5, 6)—Holotype  $150\mu$  long and  $115\mu$  wide. **DORSUM**—Cuticle thick, with secondary irregular folds on hysteronotum and a complete transverse fold between sejugal furrow and anterior extremity. Setae *vi* and *ve* not observed. The other setae very small. **LEGS**—Tarsi I-II with all the setae thick and spinous and situated in the apical half.

**HOST AND LOCALITY**—On *Bothymus deiphobus*, Cotia, Sao Paulo, Brasil, 3-II-1975 (n°17c) (holotype and 5 paratypes hypopi) and 16-I-1975 (n° 6) (6 paratypes, hypopi).

Genus *Histiostoma* Kramer, 1876  
*Histiostoma tanypus* spec. nov.

This species is known only from the hypopus. It is characterized by the very long and thin aspect of leg IV.

**HYPOPUS** (Fig. 7, 9-11)—Holotype  $216\mu$  long and  $178\mu$  wide. **DORSUM**—All setae very thin and short. **VENTER**—Sternum and epimera II and III free. Epimera IV fused in the midline

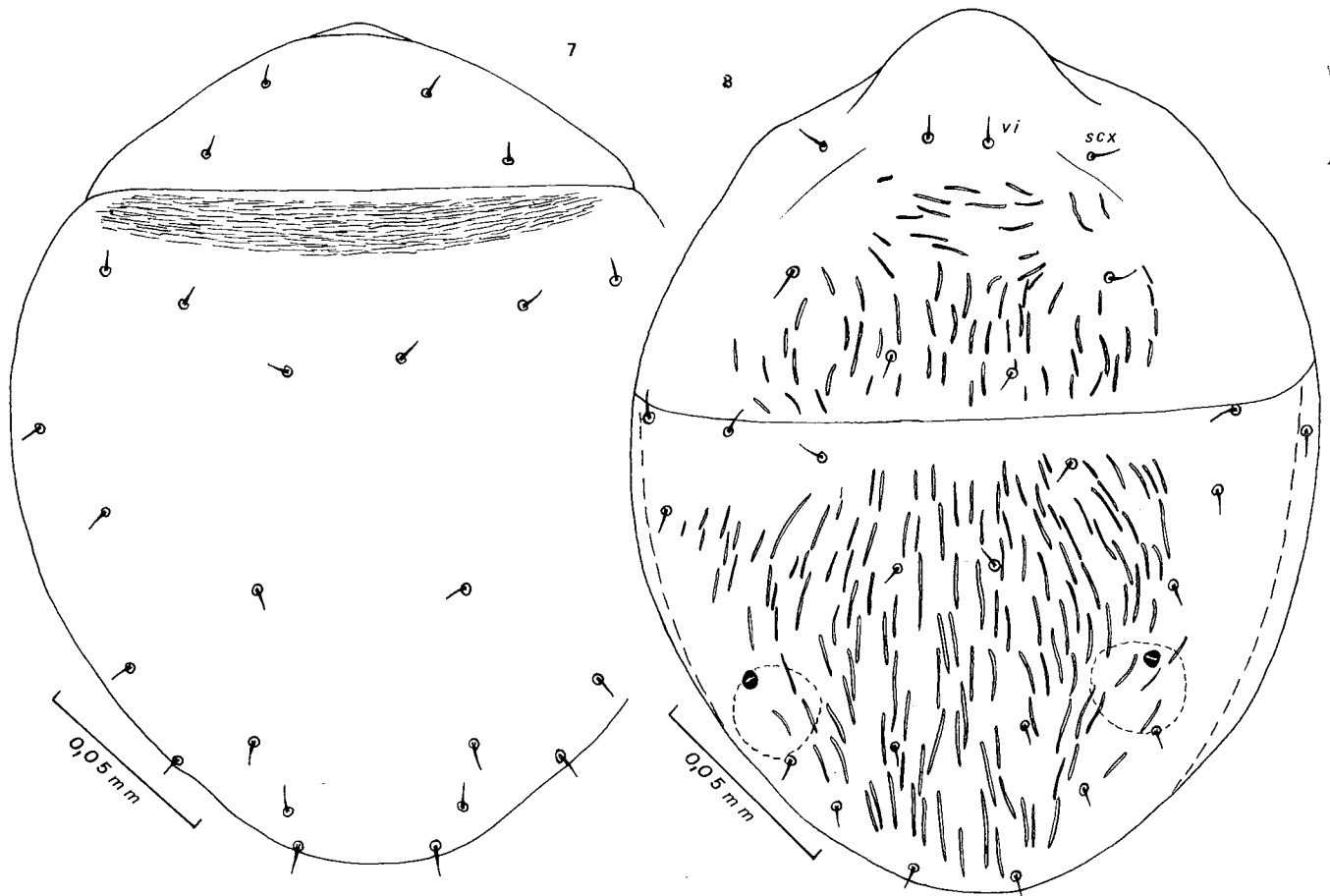


Fig. 7. *Histiostoma tanypons* sp. n. : holotype hypopus, dorsum; Fig. 8. *Dichotomiopus biaggioi* sp. n. , holotype hypopus, dorsum.

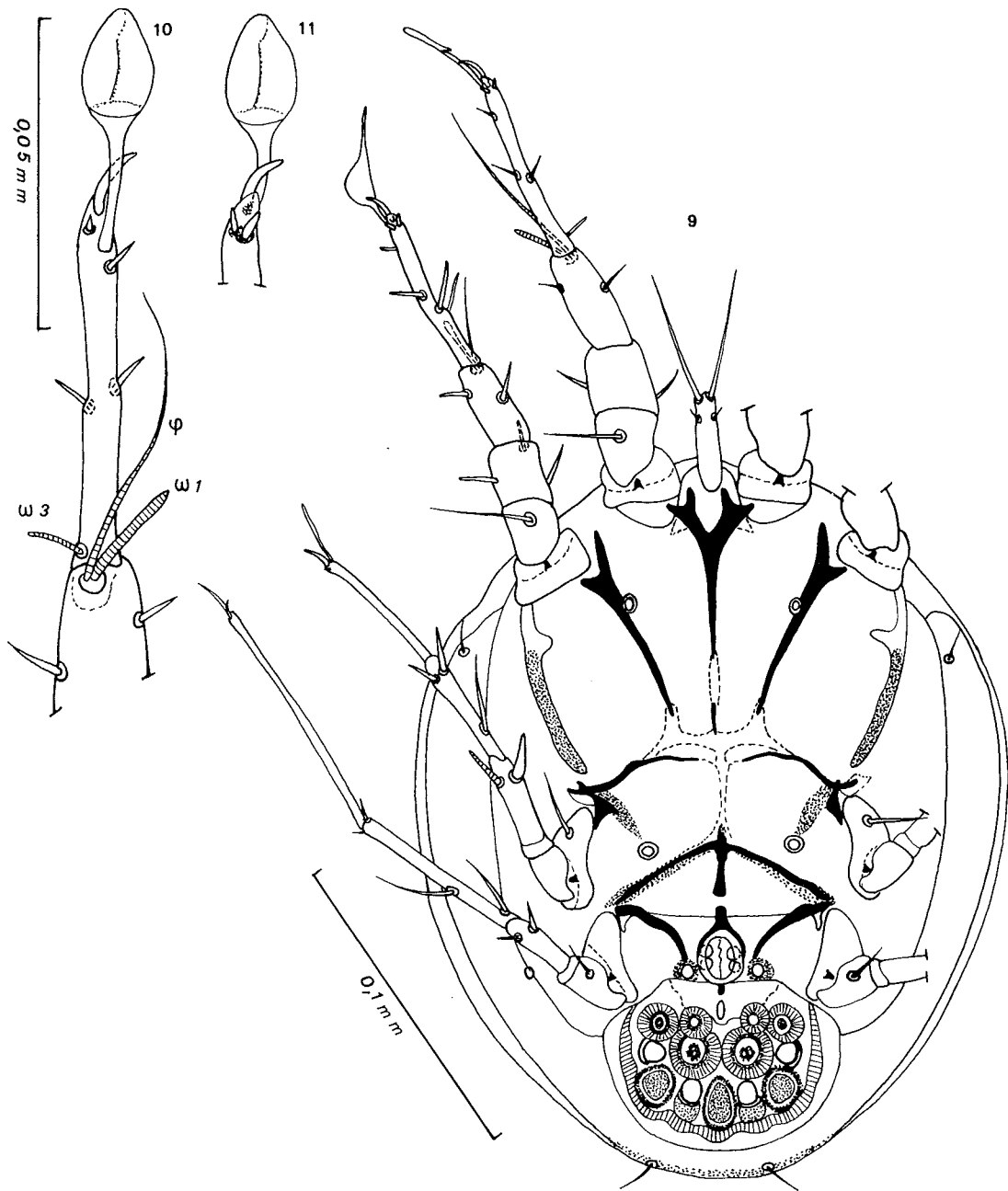
to a median longitudinal sclerite. Suctorial plate wider than long; posterior suckers larger than anterior ones; lateral conoids at the same line as posterior suckers. Palposoma  $28\mu$  long, very narrow. Leg IV very long and very narrow, the three apical segments together measure  $150\mu$ . A claw is present at the tarsi I to IV. Tarsi I and II with a large foliate apical seta. Legs I and II with a large foliate apical seta. Legs I and II not specially elongate. Leg III thicker and shorter than leg IV.

HOST AND LOCALITY—On an unidentified Vespidae, Cotia, Sao Paulo (n° 15), 1-II-1975. Holotype and 3 paratypes hypopi.

FAMILY SAPROGLYPHIDAE Oudemans, 1924

Genus *Dichotomiopus* gen. nov.

DEFINITION— Only the hypopial stage is known. All the tarsi end into a long not modified pretarsus bearing a well-developed claw. Legs III-IV similar. Epimera I Y-shaped and forked apically. Other epimera free; the epimera III recurved internally and ending close to epimera IV. Epimera II and IV forked apically. Eyes and palposoma absent. Palposomal area bearing one pair of solenidions and two pairs of thin and short setae. Opisthosoma very short. Suctorial plate small, the anterior suckers smaller than posterior ones. The 4 conoids are situated along a slightly concave line. A small shield is present behind the suctorial plate. Legs long with relatively long tarsi. The *vi* setae are present; *ve* absent. Leg chaetotaxy (I-IV): Tarsi 8-9-7-9. Tibiae 2-2-1-1. Tarsi I-II with one saucer-like (apical) seta, 5 short spines and 2 thin



Figs. 9-11. *Histiostoma tanypus* sp. n. : holotype hypopus; 9, venter; 10, tarsus and apex of tibia I dorsally; 11, apex of tarsus I ventrally,

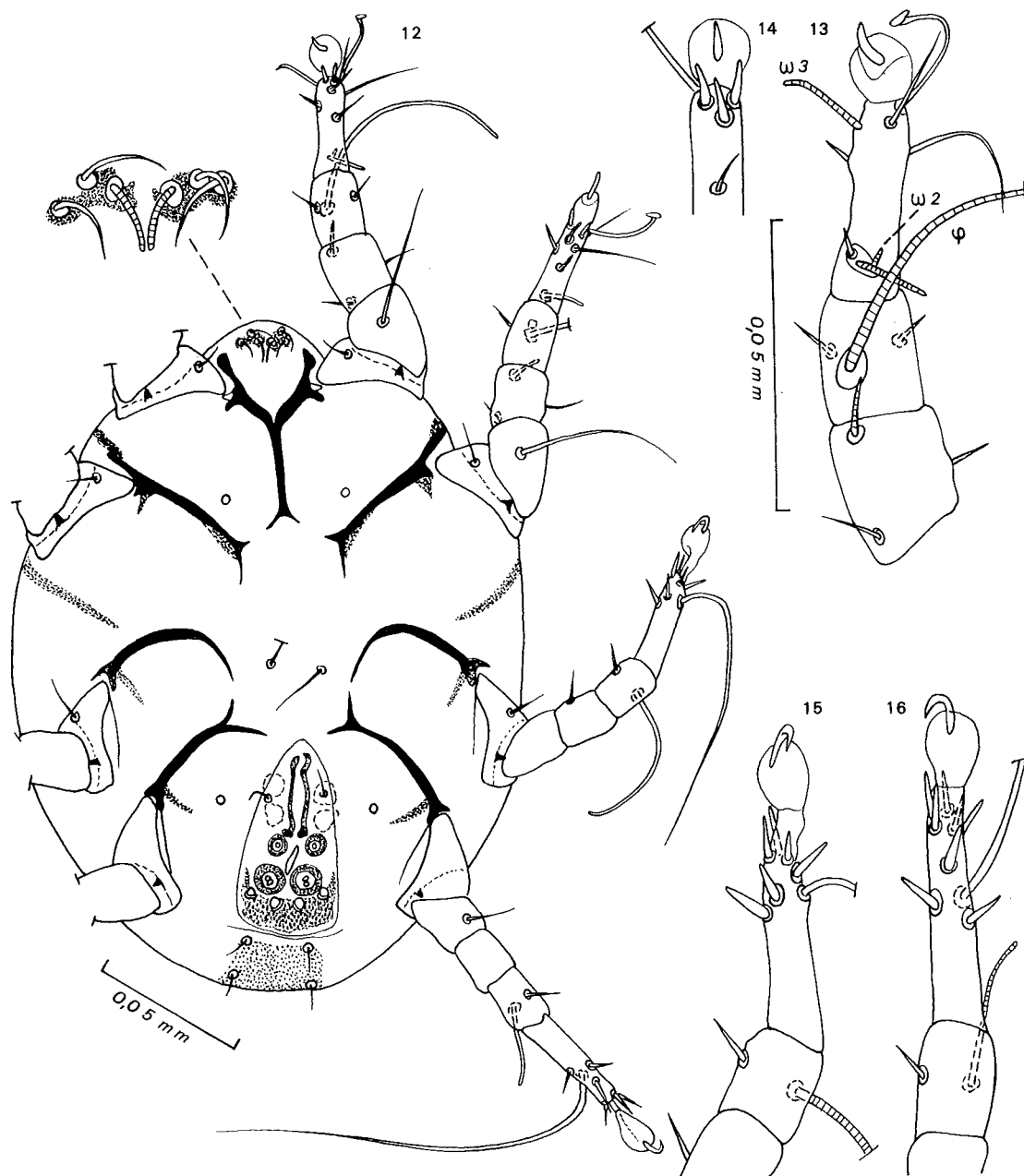
setae. Solenidiotaxy: Tarsus I with the  $\omega_3$  apical, the  $\omega_1$  basal, the  $\omega_2$  is situated at the same level as  $\omega_1$ ; there is a thin famulus in front of  $\omega_1$ . All tibiae with a long *phi*.

Type species—*Dichotomiopus biaggioi* sp. n.

The genus *Dichotomiopus* is distinguished from all the other genera of Saproglyphidae by the normal aspect of leg IV ending into a pretarsus and a well-formed claw.

*Dichotomiopus biaggioi* spec. nov.

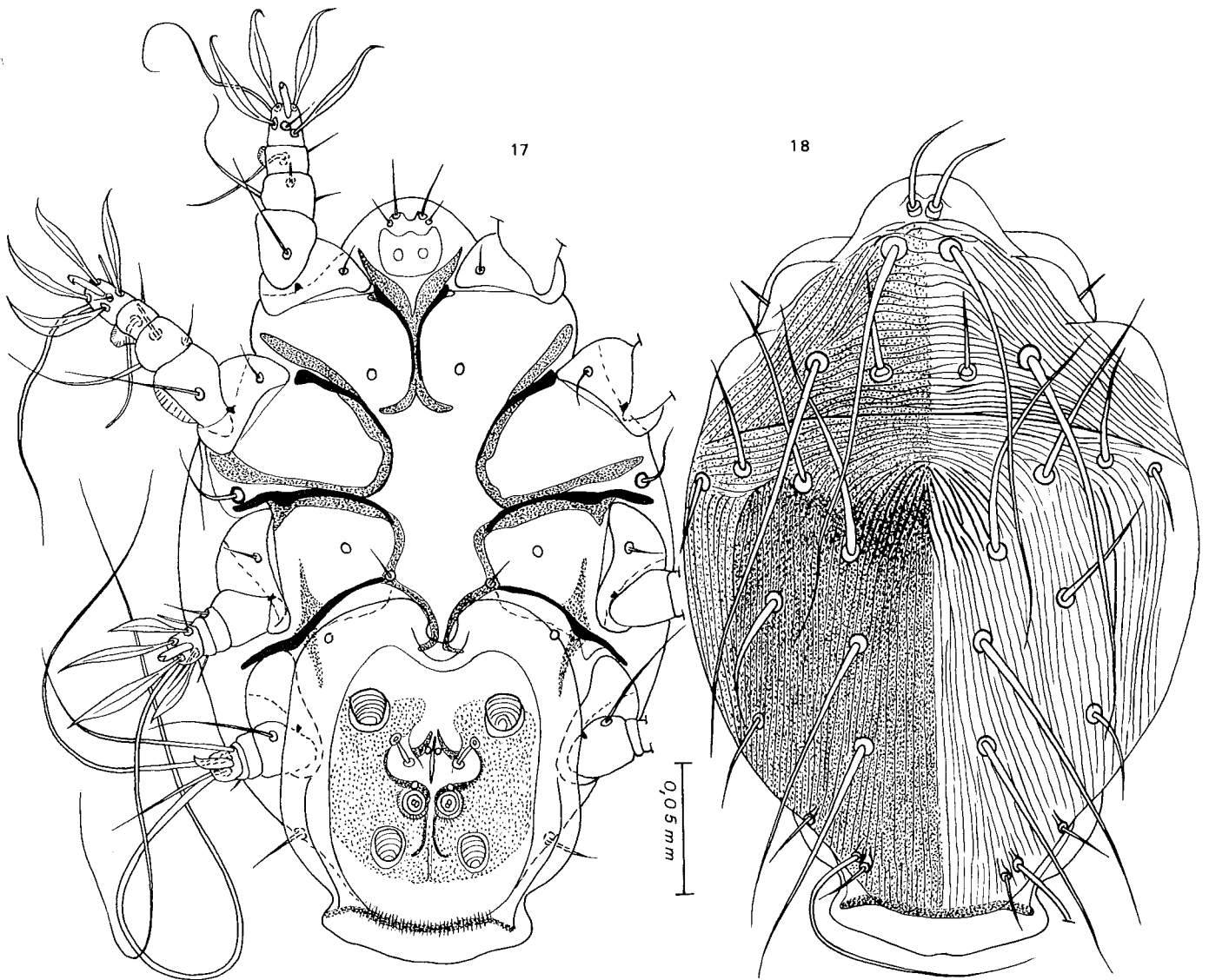
This species is named for Dr. D. Biaggio, Head of the Department of Entomology, University of Sao Paulo.



Figs. 12-16, *Dichotomiopus biaggioi* sp. n.; holotype hypopus; 12, venter; 13, tarsus, tibia and genu I dorsally; 14, apex of tarsus I ventrally; 15, tarsus and tibia III; 16, tarsus and tibia IV.

**HYPOPUS** (Figs. 8, 12-16)—Holotype  $216\mu$  long and  $181\mu$  wide. With the characters of the genus. Sejugal furrow well developed situated slightly in front of the middle of the body. Dorsal shields with short irregular longitudinal narrow depressions. Lengths of tarsi I-IV  $33\mu$ ,  $33\mu$ ,  $34\mu$  and  $37\mu$  long respectively.

**HOST AND LOCALITY** — (1) The holotype, was attached to *Dichotomius anaglypticus*. (Scarabaeidae), Cotia, Sao Paulo, Brasil, 8-II-1975. (2) Three paratypes were found on *Ischasia rufina*, (Cerambycidae) Ponta Grossa, Pr. Machado, 1940 (n 184).



Figs. 17-18, *Horstia brasiliensis* sp. n. Holotype hypopus; 17, venter; 18, dorsum.

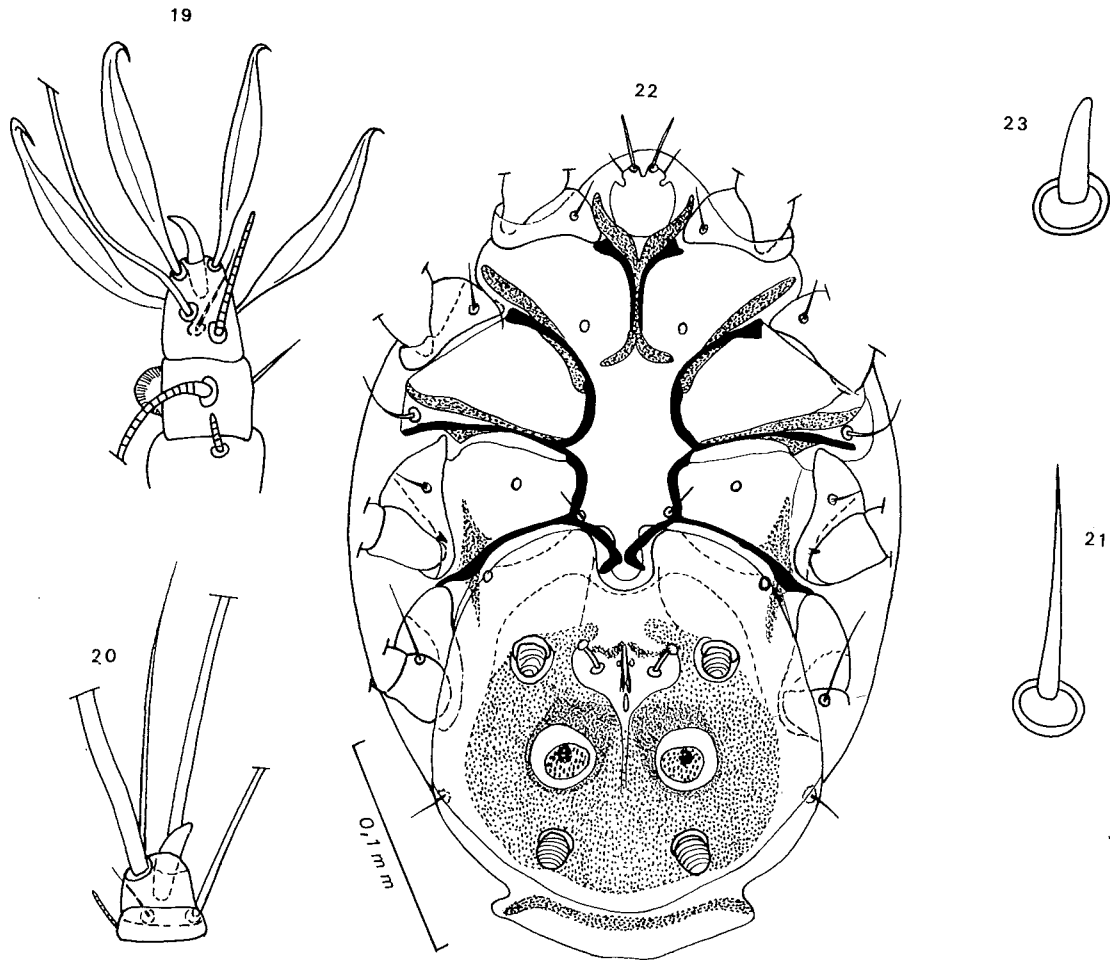
FAMILY ACARIDAE Murray, 1877

Genus *Horstia* Oudemans, 1905

*Horstia brasiliensis* spec. nov.

This species is known only from the hypopus. It resembles *H. pulcherrima* (Vitzthum, 1912 and 1920) described from *Xylocopa ordinavis*, in Venezuela, however it is distinguished from the latter by the following characters: the more anterior situation of *sc i* setae (on the same line as *sc e*), the smaller size of posterior pair of suckers which are distinctly smaller than the antero-lateral conoids, the very unequal lengths of the hysterosomal setae, the presence of a square-shaped incision in front of the posterior suckers.

**HOLOTYPE** (Figs. 17-21)—Holotype  $306\mu$  long and  $195\mu$  wide. **DORSUM**—Propodosoma with a transverse striations slightly punctate only in the center; hysterosoma with a large punctate shield covering most of its posterior part. **VENTER**—Coxae II and III closed. Sternum forked posteriorly and not fused with epimera II. Epimera IV not fused in the midline. Suctorial plate  $145\mu$  long and  $120\mu$  wide. Anterior pair of suckers very small; the diameter of posterior pair



Figs. 19-21, *Horstia brasiliensis* sp. n.: holotype hypopus; 19, tibia and tarsus I dorsally; 20, tibia and tarsus IV dorsally; 21, seta *sc i*. Figs. 22-23, *Horstia amplisucta* sp. n.; holotype hypopus; 22, venter; 23, seta *sc i*.

of suckers is  $10\mu$ , they are smaller than the conoids. Tarsi I-II ending in a thick claw. Posterior legs short with very short and thick claws. Tarsi I to III with 4 foliate setae. Tarsus IV with 5 unequal setae. Tibiae I-II with one seta. Setae *sc i* 34 to  $42\mu$  long, situated slightly behind the *sc e* which are  $150\mu$  long.

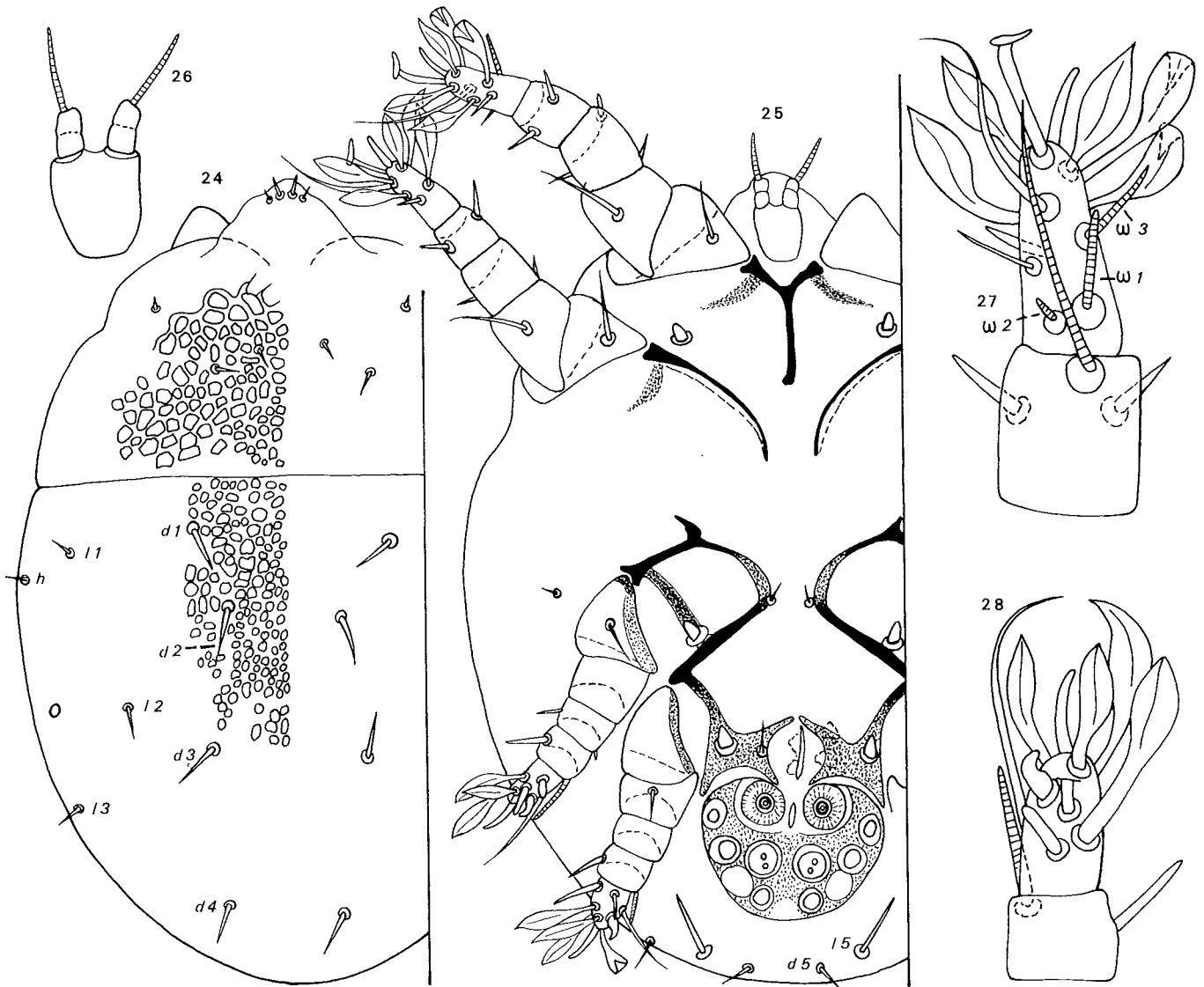
HOST AND LOCALITY— On *Bombus* sp., from Rio de Janeiro, Brasil, 13-V-1975 (n° 162) (Leg Rizzini). Holotype and 5 paratypes, hypopi.

*Horstia amplisucta* spec. nov.

This species is distinguished from *H. pulcherrima* and *H. brasiliensis* by the great development of the sucktorial plate and of the posterior pair of suckers, and by the shape of the *sc i* setae which are short spines.

HYPOPUS (Figs. 22-23)— Holotype  $329\mu$  long and  $240\mu$  wide. Dorsum as in *H. brasiliensis* but the *sc i* setae are spines  $15\mu$  long. VENTER— Sucktorial plate very wide, slightly longer ( $192\mu$ ) than wide ( $180\mu$ ). The posterior suckers are much wider (diameter  $33\mu$ ) than the conoids. The lateral conoids are situated in front of the posterior suckers. Anterior suckers pedonculate, very small. Chaetotaxy of the legs as in *H. brasiliensis*.





Figs. 24-28, *Spinacaropus brasiliensis* sp. n. : holotype hypopus; 24, dorsum; 25, venter; 26, palposoma; 27, tibia and tarsus I dorsally; 28, tibia and tarsus III laterally.

HOST AND LOCALITY—As for *H. brasiliensis*. Holotype and 1 paratype, hypopi.

Genus *Spinacaropus* gen. nov.

DEFINITION— This genus is known only from the hypopus. Body broadly oval. Cuticle of dorsum partly covered with small and flat verrucae. Sejugal furrow well formed. Epimera I fused in a sternum; epimera II free, far remote from epimera III; the latter fused with epimera IV forming closed coxal fields widely separated in the midline. Suctorial plate wider than long, well developed, anterior suckers larger than posterior ones; with lateral conoids on the same line as the posterior suckers. Setae *cx I*, *cx III* and *gp* are elongate conoids. Palposoma short, covered by the tegmen. Legs thick, relatively well developed ending into a relatively long claw. Chaetotaxy of dorsum: setae short and spinous. Legs: Most of the setae short and spine-like except on tarsi which bear several foliate setae.

Type species— *Spinacaropus brasiliensis* sp. n.

*Spinacaropus brasiliensis* spec. nov.

HYPOPUS (Figs. 24-28)—Length 452 $\mu$ , width 350 $\mu$ . With the characters given for the genus. Tarsi I-II with 5 large foliate, 1 saucer-like and 3 simple or spinous setae. Tarsi III with 5 foliate setae, 1 simple and long seta, one thick short and cylindrical and one short thick and asymmetrical. Tarsi IV with 4 foliate setae, 1 simple and long, 2 spinous and 1 short, thick and asymmetrical. Solenidion  $\omega 3$  of tarsus I situated in the middle of tarsus;  $\omega 2$  is closer to the base of tarsus than  $\omega 1$ . At one side the tarsus II bears two solenidia, one basal ( $\omega l$ ) and one at in middle of tarsus similar of  $\omega l$  of tarsus I.

HOST AND LOCALITY— On an unidentified Vespidae (n°15), from Cotia, Sao Paulo, Brasil, 1-II-1975 (holotype and 1 paratype).

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