

**HECHTIELLA LOPESI SP. N. FROM SÃO PAULO STATE, BRAZIL
(SIPHONAPTERA: RHOPALOPSYLLIDAE)**

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Descriptions are given of the male and female of Hechtiella lopesi sp. n., collected on Proechimys sp. and Tayra barbara from Boracéia Ecological Station, Salesópolis, São Paulo State, Brazil. The new species is discussed in relation to Hechtiella lakoi and Hechtiella nitidus, species previously included in the genus Polygenis. The name is a tribute to the late Brazilian entomologist, Prof. Hugo de Souza Lopes.

Key words: *Hechtiella lopesi* sp. n. – Rhopalopsyllidae – Siphonaptera – fleas – Brazil

The name *Hechtiella* was formerly proposed by Barrera (1952) as a subgenus of *Tiamastus* Jordan, 1939 to include *Polygenis lakoi*, described by Guimarães (1948). Since that time, it has passed by some taxonomic changes.

Johnson (1957) rejected the Barrera's proposal and left this species in the original genus *Polygenis* Jordan, 1939 after describing *Polygenis nitidus* – an allied species of *lakoi* – known by two females up to that time. Other similarities between *lakoi* and *nitidus* were further confirmed with the description of the male of this species (Linardi & Nagem, 1980).

Linardi (1981) verified that, in fact, "*lakoi*" and "*nitidus*" were not true *Polygenis* after comparison with other species of the genera *Rhopalopsyllus* Baker, 1905, *Polygenis* and *Tiamastus*, deposited in the collections of Siphonaptera in the Museum of Zoology of the University of São Paulo and Department of Parasitology, Federal University of Minas Gerais. The same conclusions were drawn from studies on host-parasite relationships (Linardi, 1984).

Smit (1987) considered the differences among "*lakoi-nitidus*" and other species of

Polygenis, and retained *Hechtiella* in that genus, at the subgeneric level.

Recently, Linardi & Guimarães (1993) presented a phenetic and cladistic review of the genera and subgenera of Rhopalopsyllinae. In that study, eight genera were recognized, and *Hechtiella* was considered to be an independent genus.

The following new species included in the genus *Hechtiella* is represented by specimens collected from Salesópolis, São Paulo State, Brazil, between 1949 and 1973.

Hechtiella lopesi sp. n.
(Figs 1-5)

Male (Figs 1-3)

Head – Preocular row of the preantennal area with 6 bristles on each side. Ocular row with 3 strong bristles on each side, the largest being ventromarginal. Genal process with 2 bristles on each side, one behind and other ventral to the eye; bristles the same size as those of the ocular row. Eye circular, subovate, pigmented. Frontal tubercle above the level of the eye, and placed below middle of frontal margin. Maxillary lobe extending almost to the apex of the 3th segment of the maxillary palp. Maxillary palps segments IV, II, I, III in descending order of length. Labial palps five-segmented, reaching the apex of the forecoxa. Postantennal region with 3 rows consisting, respectively, of 11, 16 and 13 bristles.

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Thorax – Pronotum and mesonotum each with 2 rows of bristles, the posterior row with more robust bristles. Anterior pronotal row with 15 bristles, posterior row with 15 bristles interspersed by small hairs. Anterior mesonotal row with 16 bristles, posterior row with 14, also interspersed by small hairs. Metanotum with 3 rows of 12, 21 and 14 bristles, the posterior row with the largest bristles; the last row with small bristles interspersed. Metanotal flange with 12-13 small apical spinelets. Mesonotum with 2 episternal and 4 epimeral bristles. Lateral metanotal area with 5 and 3 bristles on each side. Metepisternum with a weak bristle near the posterodorsal margin. Metepimeron with two rows of, respectively, 5 and 4 strong bristles. Posterodorsal extension of metasternal furca extending more than 3/4 of metapleural ridge.

Legs – Forecoxa with 30-31 bristles scattered over the outer surface. Forefemur with 10-12 small bristles on the outer surface. Foretibia with 6 dorsal notches: chaetotaxy 1-2-2-3-2-3. Third fore tarsomere as long as broad. Claws of fore legs widen. Oblique external break of the mesocoxa incomplete, the fracture line beginning at the antero-dorsal margin and extending to the 1/4 of the coxa. Mesofemur with 8 bristles on the outer surface and 12 on the posterior margin. Mesotibia with 6 dorsal notches (chaetotaxy 1-2-2-3-2-3) and 14 other bristles on the outer surface. Metafemur with 16 bristles on the posterior margin and a notch with 2 strong bristles; 18 bristles on the outer surface. Metatibia with 6 dorsal notches (chaetotaxy 2-2-2-3-2-3) and 18 bristles, including the premarginal anterior bristles, on the outer surface. With a glabrous space between the ventromarginal and subdorsal rows. Hind tarsomeres I, II, V, III, IV in descending order of length. The longest bristles on tarsomeres I and II not reaching to the apex of the following tarsomere. Bristles on tarsomere III extending to 1/6 of the distitarsomere.

Abdomen – Terga I-VII each with 2 rows of bristles, the posterior rows containing the stronger bristles which are interspersed with small bristles. Tergum I: 13 and 11 bristles; Tergum II: 15 and 16; Tergum III: 13 and 15; Tergum IV: 10 and 15; Tergum V: 4 and 15; Tergum VI: 2 and 13; Tergum VII: 4 and 12 bristles. Basal abdominal sternum with 8 bristles on one side, 10 on the other. Other sterna with only a row of strong bristles. Api-

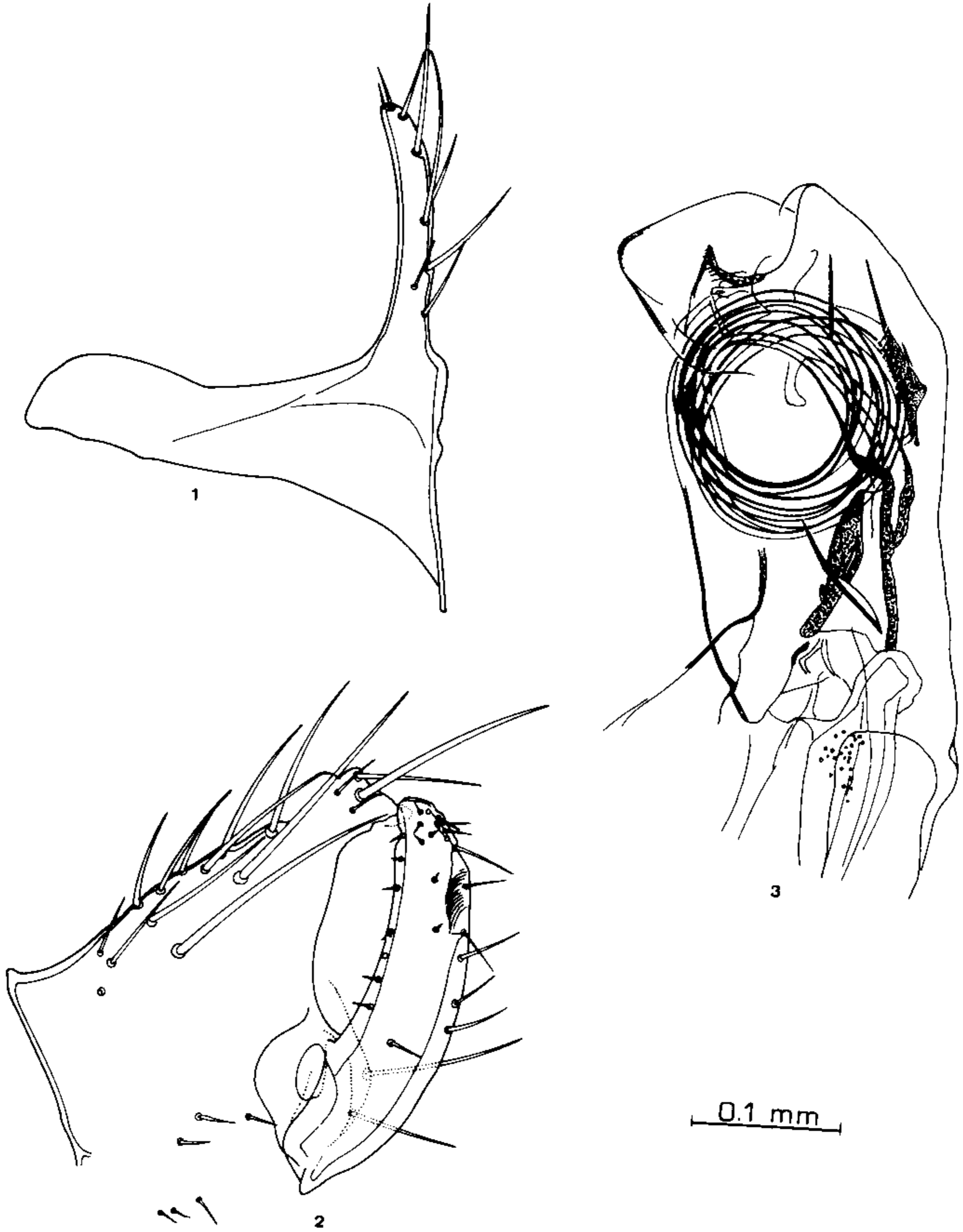
cal spinelets on the terga I-V, decreasing in number. One antesensilial bristle on each side; sensillum with 16 trichobothria on each side.

Modified segments (Figs 1 and 2) – Sternum VIII with the ventral incision beginning at the level to the lateral row of bristles, which contains 10 long bristles. The ventral division is prolonged to the tip of the sternum. Sternum IX with distal arm lesser than the proximal arm (Fig. 1). Distal arm narrower than the proximal one or the telomere (movable process of clasper); posterior margin with 6-7 bristles on 3/4 apical and 2 ventromarginal bristles; heel well developed. Telomere more than four times as long as broad, with two denticulus placed at the apical portion in anterior margin; this process not reaching to the lowest apical bristle of the basimere (immovable process); with subparallel and sclerotized margins, mainly at the apical third (Fig. 2). The internal portion of the telomere is not sclerotized and wider than the sum of the external sclerotized margins. Basimere dorsally with various bristles and a patch of 3 small bristles on basal portion. One short and one long bristle implanted at the apex of this process. Two acetabular bristles, being the longest placed at the level of the acetabulum.

Aedeagus (Fig. 3) – Sclerotized inner tube with apical and basal portion of approximately equal length, and dorsally reflected with several convolutions (approximately six) around the apical inner tube. Diameter of the coiled portion equal to length of apical portion. Side piece elongate with opposite ends acuminate. Fluted membrane absent. Pseudotube short, not reaching the basal sclerite of inner tube. Coiling on the right side of apical sclerite and levogyrate. Palliolum with striae (ribs) on the right side of apical sclerite of inner tube. Fender absent. Dorso-lateral lobes with anterior and posterior margins straight. Median dorsal lobe with subangular apical portion. Lateral lobe narrow, somewhat angulous apically. Crescent sclerite slender.

Female (Figs 4 and 5)

Head, thorax, legs and unmodified abdominal segments essentially as in male, with the exception of the basal sternum with 12 bristles on one side, 15 on the other. Three or four bristles, on each side, in front of spiracle of eighth tergum. The row of bristles on tergum VIII extending to the ventral margin. Spermatheca with cribiform extension of the bulga

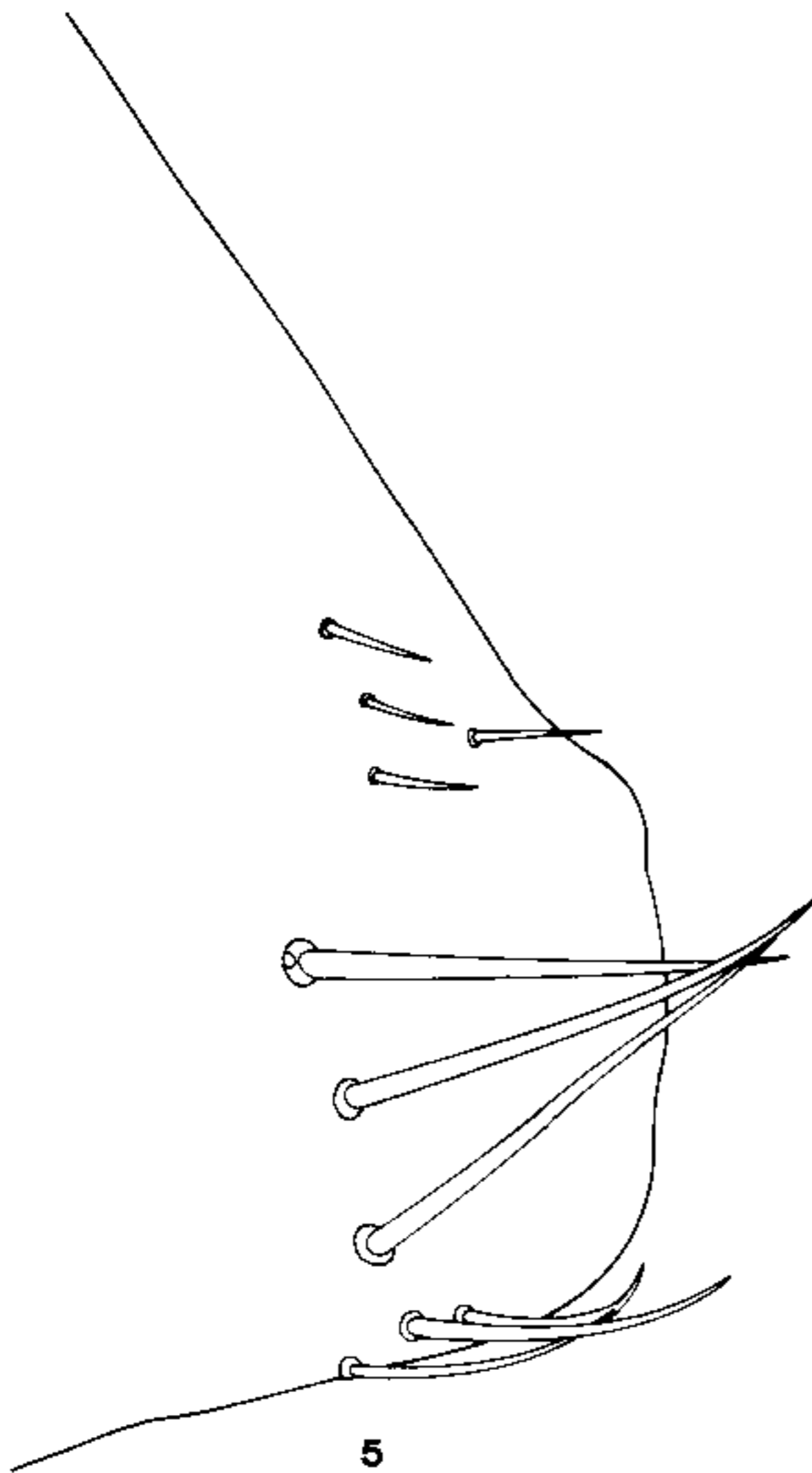
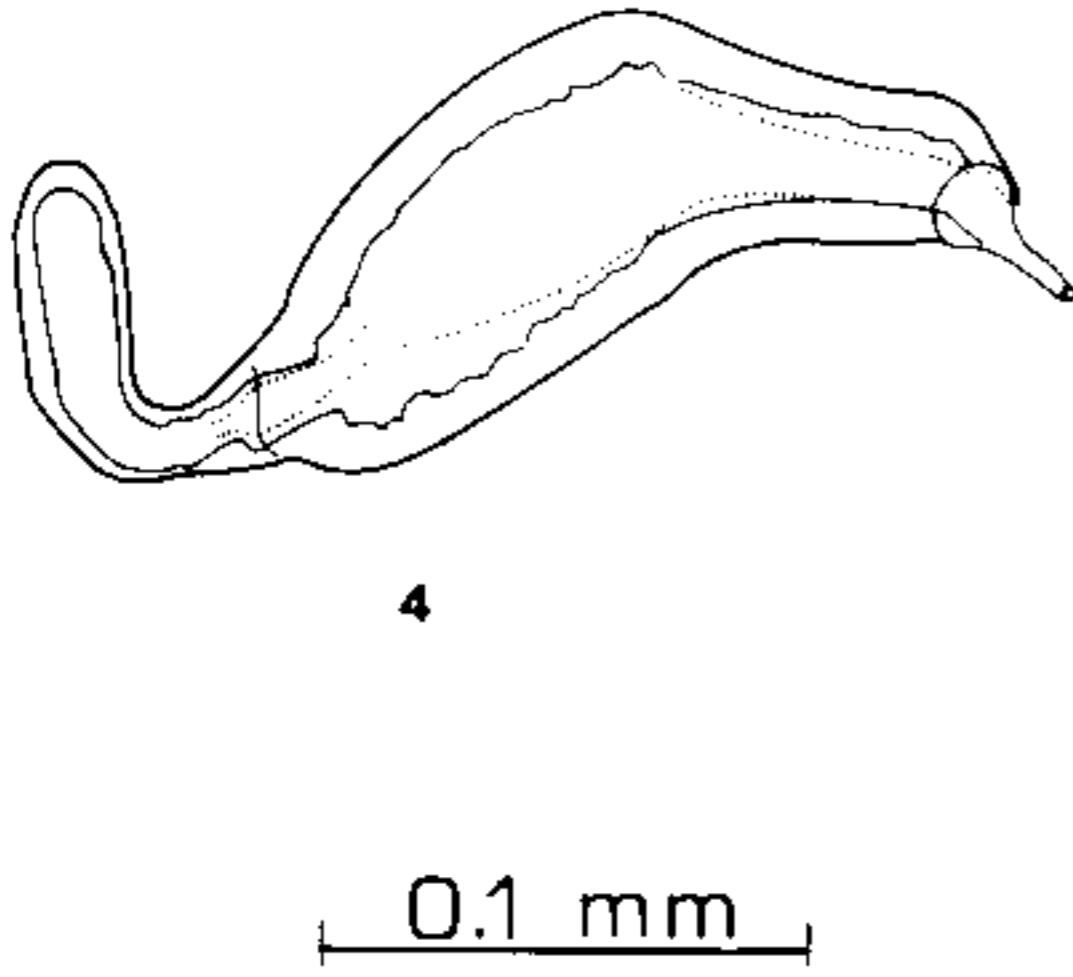


Hechtiella lopesi sp. n. – Fig. 1: sternum IX of the male. Fig. 2: basimere (immovable process) and telomere (movable process) of clasper of the male. Fig. 3: aedeagus (male).

(as in *Tiamastus*). Hilla wider and longer than the nose (Fig. 4). Anal stylet almost four times as long as broad. Posterior margin of sternum VII truncate bearing 6 long and 4 small bristles on each side (Fig. 5).

Type material – Holotype male ex *Proechimys* sp. (spiny rat), Brazil: State of São Paulo, Salesópolis (Ecological Station of Boracéia),

12 Sept. 1973, Emílio Dente collector. One male and female paratypes ex *Tayra barbara* (= *Eira barbara*) – devouring a rat – with same locality and collector but 1949. Two females, paratypes, ex *Proechimys iheringi* Thomas, same locality, J. Oliveira collector, 19 Feb. 1969. Holotype and paratypes deposited in the collection of the Museum of Zoology of the University of São Paulo, Brazil.



Hechtiella lopesi sp. n. – Fig. 4: spermatheca (female).
Fig. 5: posterior margin of sternum VII (female).

One male paratype with same host, locality and collector of the holotype but 1971, deposited in the collection of Department of Parasitology of the Federal University of Minas Gerais, Brazil.

Length – holotype male: 2.18 mm; paratype female: 2.33 mm.

Etymology: the new species is named in honour of the late Prof. Hugo de Souza Lopes, a leading Brazilian entomologist.

DISCUSSION

Hechtiella lopesi sp. n. resembles *H. lakoi* and *H. nitidus* by the dorsal reflection, convolutions, localizations of coils in relation to inner tube, and levogyrate coiling of the aedeagus, as well as by the cribiform extension of bulga of the spermatheca.

The male differs from *H. lakoi* and *H. nitidus* by the curvature and sclerotization of the telomere, the ratio between the length of the telomere and length of the basimere of clasper, and the width of the side piece of aedeagus. The females can be separated by the ratio between the widths of the hilla and nose of spermatheca, shape and chaetotaxy of the posterior margin of sternum VII.

The male of the new species also differs from *H. nitidus* by the number of convolutions of the aedeagus.

REFERENCES

- BARRERA, A., 1952. Notas sobre sifonápteros. V. Consideraciones sobre los géneros que forman la subfamilia Rhopalopsyllinae Oudemans, 1909 (Ins., Siph., Rhopalops.). *Ciencia*, 12: 187-194.
- GUIMARÃES, L. R., 1948. Sobre algumas espécies do gênero *Polygenis* Jordan, 1939 (Pulicidae-Suctoria). *Arq. Zool. Est. S. Paulo*, 5: 539-552.
- JORDAN K., 1939. On *Rhopalopsyllus* Baker, 1905 (Siphonaptera). *Novit. Zool.*, 41: 443-448.
- JOHNSON, P. T., 1957. *A classification of the Siphonaptera of South America with descriptions of new species*. Entomological Society of Washington, Washington, DC, 298 p.
- LINARDI, P. M., 1981. *Polygenis* Jordan, 1939 (Siphonaptera: Rhopalopsyllidae): estudos morfológicos, zoogeográficos, fenéticos, filogenéticos e relação hospedeiro/parasito. Doctor's Thesis, Universidade Federal de Minas Gerais, Belo Horizonte, 145 p.
- LINARDI, P. M., 1984. Relações taxonômicas e filogenéticas entre os gêneros de Sifonápteros Ropalopsilinos obtidas do estudo das relações hospedeiro/parasito. *Rev. Brasil. Biol.*, 44: 329-334.
- LINARDI, P. M. & GUIMARÃES, L. R., 1993. Systematic review of genera and subgenera of Rhopalopsyllinae (Siphonaptera: Rhopalopsyllidae) by phenetic and cladistic methods. *J. Med. Entomol.*, 30: 161-170.
- LINARDI, P. M. & NAGEM, R. L., 1980. Descrição do macho de *Polygenis nitidus* Johnson, 1957 (Siphonaptera: Rhopalopsyllidae). *Rev. Brasil. Biol.*, 40: 155-157.
- SMIT, F. G. A. M., 1987. *An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History)*. Vol. VII. Oxford University Press, London, 380 p.