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Description of a new troglophilous species of the genus *Maxchernes* Feio, 1960 (Pseudoscorpiones, Chernetidae) from Brazil (Sao Paulo State)

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Description of a new troglophilous species of the genus *Maxchernes* Feio, 1960 (Pseudoscorpiones, Chernetidae) from Brazil (Sao Paulo State). - *Maxchernes iporangae* n. sp. is described and figured. It occurs mainly in the Caverna Alambari de Baixo, Iporanga, in guano of fruit-feeding bats. It is compared with the two other known species of the genus, *M. birabeni* Feio from Argentina and *M. plaumanni* Beier from Brazil. Some biological observations are given.

Key-words: Pseudoscorpiones - Chernetidae - Brazil - caves - guano - taxonomy.

INTRODUCTION

The cave-dwelling fauna of Brazil is the richest one of South America, at least one animal species has been recorded in more than 280 caves out of 1537 explored ones (Pinto-da-Rocha 1995). But only one pseudoscorpion species, *Pseudochthonius strinatii*, has been upto now mentioned from Brazilian caves (Beier 1969), although the presence of this group (in general or identified to family or genus level) had been currently recorded (e.g. Trajano & Gnaspini-Netto 1991; Pinto-da-Rocha 1995). A large collection of pseudoscorpions of approximately 100 caves (mainly collected by Eleonora Trajano, Ricardo Pinto-da-Rocha and Pedro Gnaspini-Netto) is under final study by the senior author, but it is necessary to publish this new species separately since the junior author has to submit her PhD thesis on the biology of this yet undescribed species (Andrade & Gnaspini 1998) till end of this year.

Chernetidae belonging to other genera are common cave pseudoscorpions in Brazil.

Acronyms used:
MHNG Muséum d'histoire naturelle, Geneva, Switzerland
MZUSP Museu de Zoologia Universidade de Sao Paulo, Brazil

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DESCRIPTION

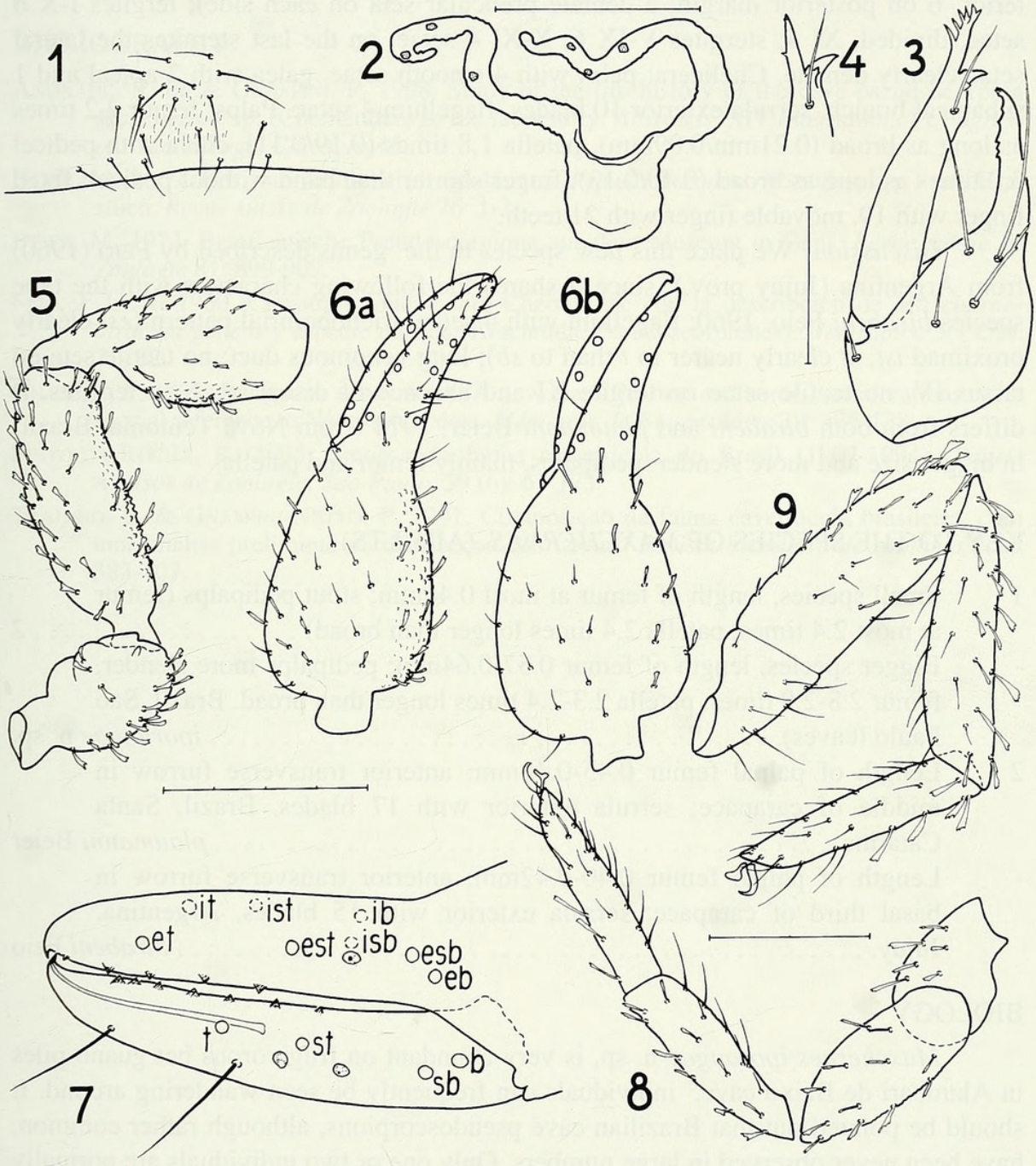
Maxchernes iporangae n. sp. Figs 1- 9

Material: Sao Paulo state, Caverna Alambari de Baixo, Iporanga, in guano of fruit-feeding bats, lg. P. Gnaspini-Netto, 16.X.1988: 1♀ (holotype) 3♂ 1♀ 2 tritonymphs (MZUSP 10298); 2 protonymphs (bred in captivity: from female 65, 2.12.97, and female 56, 12.1.98) (paratypes); Gruta das Aguas Quentes, Iporanga, lg. P. Gnaspini-Netto, 2.V.1986: 1♀ (paratype) (MZUSP 10297) (2♂ 1♀ paratypes in MHNG).

Description: Carapace and palps yellowish brown; carapace laterally coarsely granulate, central parts of pro- and mesozone smooth, posterior margin granulate, two distinct, granulate transverse furrows, the subbasal one clearly nearer to posterior margin than to medial furrow, no eyes or eye-spots; 1,0-1,1 times as long as broad, in middle broadest; setae distinctly clavate, 4+1 nearly smooth preocular ones on anterior, 7-10 on posterior margin; tergites (XI excepted) divided, scaly sculpture, setae clavate, longer on last tergites, 5-6 setae on posterior margin, III-IX also with a lateral and medial anterior one, XI 8-10 (2 medial discal setae); apical lobe of palpal coxa with 3 marginal and 1-2 discal setae, palpal coxa 19-22, coxa I 10-12, II 13-15, III 18-21, IV approx. 32; anterior genital operculum of male with 25-30 long setae (semicircular arrangement), of female (fig. 1) with 17-21 setae in central group, genital chamber of male with 2-3/2-3 smooth setae, spermatheca of female (fig. 2) with two short tubules and a few tiny cribillate plates on them. Sternites divided (excepted III, XI), scaly, setae on anterior sternites smooth, VII-XI also with clavate setae, III 13-15, 3 suprastigmal setae, half-sternite IV 3-5, 1 suprastigmal seta, normally 5-6 setae on posterior margin of following ones, VII-X also with a medial anterior seta, XI 6-7 (2 lateral and 2 medial discal tactile setae, all relatively short). Chelicera (fig. 3): palm with 6-7 setae (2-3 apically denticulate), fixed finger with 4 bigger and 3 small teeth, movable finger with tooth-like subapical lobe, galea of female with 6 branches, of male (fig. 4) nearly smooth, serrula exterior 16-17 blades, flagellum 4 setae (distal one dentate). Palps (figs 5-7) distinctly granulate, setae short, clavodentate, lateral setae on femur and patella longer, dentate; trochanter with well developped dorsal hump, femur 2,8-2,9 times as long as broad, patella 2,4-2,5, club 1,74-1,80 times as long as broad, hand with pedicel 1,7 times (male: 1,5-1,6 times) as long as broad and 1,18-1,24 times longer than finger, chela with pedicel 2,8-2,9 times (male: 2,6-2,7) as long as broad; fixed finger with 36-38 marginal teeth, 4-7 external and 3-4 internal accessory teeth, movable finger 38-41 marginal teeth, 4-7 external and 2-4 internal accessory teeth. Trichobothria see fig. 7; no long smooth seta on dorsal side of finger, near *ist*. Claws of legs (figs 8, 9) smooth, longer than undivided arolia, subterminal seta on tarsus IV smooth, curved. Leg I: femur 1,4-1,6 times as long as broad, patella 2,7-3,0 times as long as broad and 1,46-1,51 times longer than femur, tibia 3,7-4,1 times, tarsus 5,1-6,1 times as long as broad; leg IV: lateral setae clavodentate, femur+patella 3,6-4,2 times, tibia 4,3-4,8 times, tarsus without tactile seta, 4,7-5,4 times as long as broad.

Measurements in mm (3♂/3♀): Carapace 0.60-0.72/0.55-0.65; palps: femur 0.57-0.64/0.20-0.24, patella 0.53-0.61/0.21-0.25, hand with pedicel 0.54-0.62/0.32-0.37, finger length 0.45-0.50, chelal length 0.92-1.04; leg I: femur 0.18-0.22/0.11-

0.16, patella 0.26-0.31/0.10, tibia 0.27-0.31/0.07-0.08, tarsus 0.28-0.32; leg IV: femur+patella 0.48-0.57/0.12-0.16, tibia 0.38-0.43/0.08-0.10, tarsus 0.31-0.36/0.06-0.07.



FIGS 1-9

Maxchernes iporangae n. sp. 1: female genital operculum; 2: spermatheca; 3: chelicera of female; 4: galea of male; 5-6: pedipalp of female and chelal hand of male (6b: chaetotaxy and granulation partially omitted); 7: trichobothrial pattern; 8: leg I (female); 9: leg IV (female). Scale unit 0.1 mm.

Tritonymph: similar to adults; sternite II with 4 central setae; palps: femur 2,6 times as long as broad (0.46mm/0.18mm), patella 2,1 times (0.42/0.20), chela with pedicel 3,1 times as long as broad (0.76/0.25).

Protonymph: Carapace smooth in posterior half; 26 clavate setae (4 on anterior, 6 on posterior margin; a dentate preocular seta on each side); tergites I-X 6 setae, divided, XI 4; stergites V-IX 6, X-XI 4 setae, on the last sternites the lateral setae clearly dentate. Chelicera: palm with 4 smooth setae, galea with 2 apical and 1 subapical branch, serrula exterior 10 blades, flagellum 4 setae. Palps: femur 2,2 times as long as broad (0.21mm/0.09mm), patella 1,8 times (0.19/0.11), chela with pedicel 3,0 times as long as broad (0.40/0.13), finger shorter than hand without pedicel; fixed finger with 19, movable finger with 21 teeth.

Discussion: We place this new species in the genus described by FEIO (1960) from Argentina (Jujuy prov.), since it shares the following characters with the type species *birabeni* Feio, 1960: flagellum with 4 setae; trichobothrial pattern (*est* clearly proximad *ist*; *st* clearly nearer to *t* than to *sb*); long venomous duct; no tactile seta on tarsus IV, no tactile setae on tergite XI and absence of discal setae on tergites. It differs from both *birabeni* and *plaumanni* Beier, 1974 (from Nova Teutonia, Brazil) in bigger size and more slender pedipalps, mainly femur and patella.

KEY TO THE SPECIES OF *MAXCHERNES* (ADULTS)

1 Small species, length of femur at most 0.46mm; stout pedipalps (femur at most 2.4 times, patella 2.4 times longer than broad) 2

\- Bigger species, length of femur 0.57-0.64mm; pedipalps more slender, femur 2.8-2.9 times, patella 2.3-2.4 times longer than broad. Brazil, Sao Paulo (caves). . . . . *iporangae* n. sp.

2 Length of palpal femur 0.45-0.46mm; anterior transverse furrow in middle of carapace; serrula exterior with 17 blades. Brazil, Santa Catarina. . . . . *plaumanni* Beier

\- Length of palpal femur 0.40-0.42mm; anterior transverse furrow in basal third of carapace; serrula exterior with 15 blades. Argentina, Jujuy. . . . . *birabeni* Feio

BIOLOGY

Maxchernes iporangae n. sp. is very abundant on frugivorous bat guano piles in Alambari de Baixo cave, individuals can frequently be seen wandering around. It should be pointed out that Brazilian cave pseudoscorpions, although rather common, have been never observed in large numbers. Only one or two individuals are normally observed in cave passages and/or on guano piles. The new species seems to be restricted to the guano piles of this particular cave, although one single specimen has been collected in a cave nearby (Aguas Quentes). Frugivorous bat guano piles of the same kind and extension, and including a very similar fauna, have been found in other caves from the same region. Nevertheless, *M. iporangae* n. sp. has not been recorded from these other caves so far, in spite of similar collection effort.

Considering its biology, *iporangae* n. sp. seems to fit very well into the guanobite concept (sensu GNASPINI 1992) - a species restricted to guano deposits in caves. Its reproductive and behavioural biology is being studied in laboratory, and is the subject of a paper in preparation by the junior author.

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