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A new species of *Spurostigma* Eertmoed (Psocodea: Psocoptera): *Spurostigmatidae* from Brazil

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Abstract

A new species of *Spurostigma*, the first recorded in Brazil, is here described and illustrated. It differs from all the species in the genus, in which the male is known, in wing venation and in phallosome structure. It is the thirteenth known species of *Spurostigma* and the fourth species known from South America.

Key words: Epipsocetae, taxonomy, neotropics

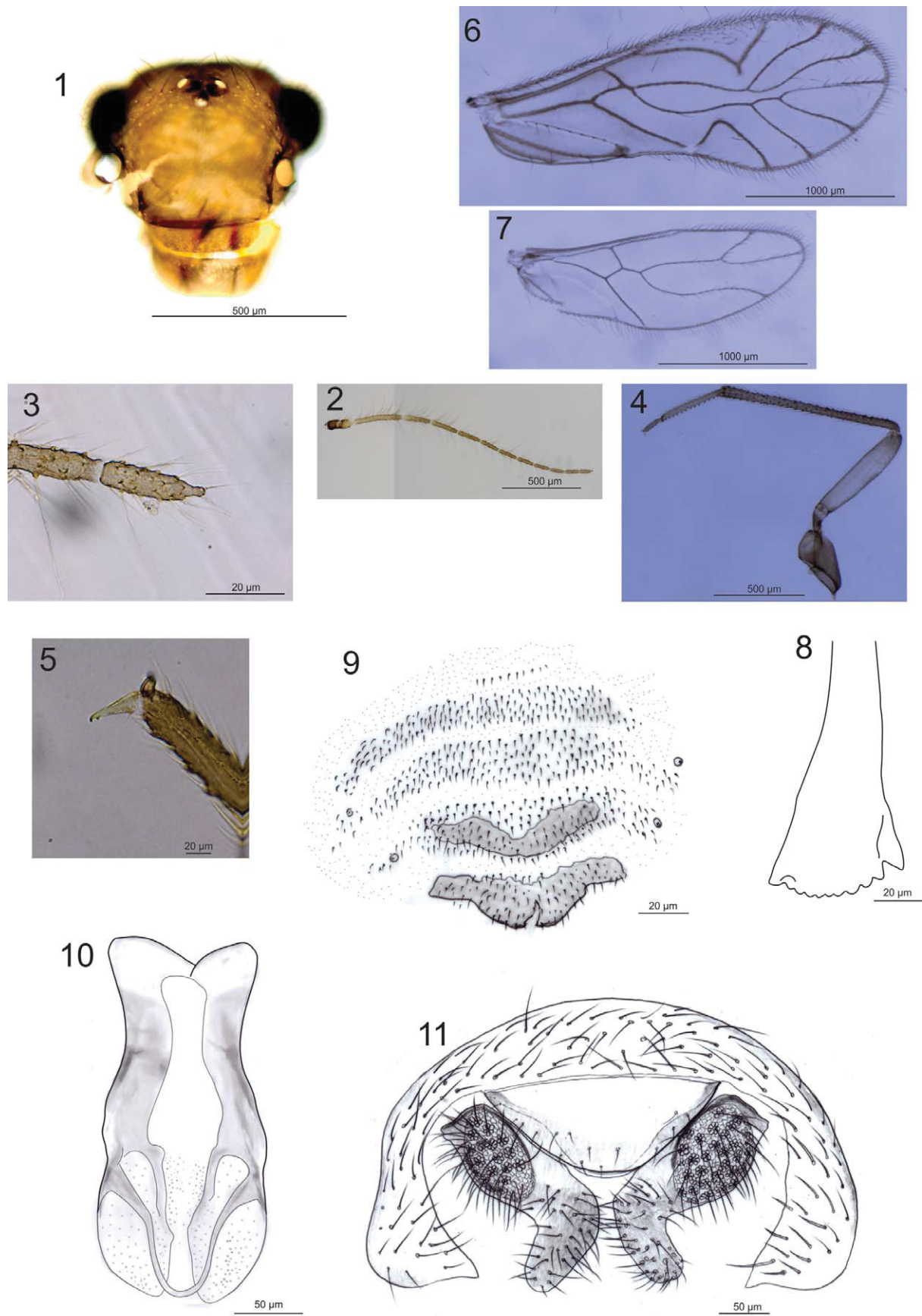
Introduction

The genus *Spurostigma* Eertmoed, presently includes 12 species. These occur as follows: Mexico (1), Panama (1), Cuba (2), Dominica (2), Puerto Rico (2), and one each in Dominican Republic, Guyana, Surinam, and Bolivia (Badonnel, 1977; Eertmoed, 1973; García Aldrete, 2009). *S. epirotica*, *S. dominica*, and *S. portoricensis* are known from both sexes, *S. panamensis*, *S. mesembria*, *S. insula* and *S. hispaniola* are known only from males, and *S. cuba*, *S. jimenezi*, *S. boliviana*, *S. nesiotis* and *S. guyana*, are known only from females.

During the course of recent field work in NE Brazil, to survey the fauna of Psocoptera within the frame of the PPBio-Semi-arid Project, one of us (AMSN), found two male specimens of *Spurostigma* at Milagres, Bahia. Comparison of these specimens with the described species in the genus indicated that they represent an undescribed species. The purpose of this work is to describe and illustrate this species since the genus has not previously been recorded in Brazil.

Material and methods

The specimens were dissected in 80% ethyl alcohol, and the head, antennae, mouth parts, wings, legs and genitalia were mounted on slides in Canada Balsam. Standard measurements were taken of parts on the slides, with a filar micrometer (See García Aldrete, 2009). Abbreviations of parts measured are as follows: FW, HW: length of right fore- and hind- wings, F, T, t1 and t2: length of femur, tibia and tarsomeres of right hind leg, ctt1: number of ctenidobothria on t1, Mx4: length of fourth segment of right maxillary palp, fl...fn: length of flagellomeres 1...n of right antenna, IO, D and d: minimum distance between compound eyes, antero-posterior diameter and transverse diameter of right compound eye, respectively, in dorsal view of head, PO: d/D. The holotype is deposited in the Laboratório de Sistemática de Insetos, Departamento de Ciências Biológicas, Universidade Estadual de Feira de Santana, Bahia, Brazil.



FIGURES 1–11. *Spurostigma caatinga* n. sp. (male). 1. Front view of head. 2. Right antenna. 3. Distal flagellomeres of right antenna. 4. Right hind leg. 5. Pretarsal claw of right hind leg. 6. Forewing. 7. Hindwing. 8. Lacinial tip. 9. Hypandrium. 10. Phallosome. 11. Clunium, paraprocts and epiproct. Scales in μ m.



FIGURE 12. Distribution of the species of *Spurostigma* in four subregions of the Neotropical region. A. Caribbean. B. Amazonian. C. Chaco. D. Paranaense.

Key to the species of *Spurostigma* Eertmoed
(modified from García Aldrete, 2009)

1. Forewing Rs-M joined by a crossvein. 2
- Forewing Rs-M diverging from a point or fused for a distance 7
2. Forewing with a pigmented pattern. 3
- Forewing without a pigmented pattern 4
3. No brown areolae on setal bases of veins on proximal half of forewing; forewing veins R2+3 to areola postica distinctly angulate distally. Central Bolivia *S. boliviana* García Aldrete
- With brown areolae on setal bases of veins on proximal half of forewing; veins R2+3 to areola postica not angulate distally. Puerto Rico *S. portoricensis* Eertmoed
4. Forewing areola postica with a pigmented spot on apex 5
- Forewing areola postica without a pigmented spot on apex 6
5. Brown areolae at the base of setae on veins R, M-Cu, Cu1, A1, and A2; female epiproct with a black spot at each antero-lateral corner and at the distal tip. Puerto Rico *S. nesiotis* Eertmoed
- Without brown areolae at the base of setae on veins indicated above, female epiproct without black spots as above. Cuba *S. cuba* Eertmoed
6. A light brown spot on proximal angle of areola postica. Southern Mexico. *S. epirotica* Eertmoed

-.	Without a light brown spot on areola postica. Surinam	<i>S. mesembria</i> Eertmoed
7.	Forewing venation caeciliusid (Rs with two branches, M with three branches)	8
-.	Forewing vein M3 five branched and joined to areola postica. Dominican Republic	<i>S. hispaniola</i> Eertmoed
8.	Areola postica with a pigmented spot on apex	9
-.	Areola postica without a pigmented spot on apex.	12
9.	Forewing membrane with a distinct pigmented spot on Rs-M junction, and basally above A2 and A1. Cuba	<i>S. jimenezi</i> Badonnel
-.	Forewing membrane without pigmented spots as above	10
10.	Brown areola at setal bases on R, M-Cu, Cu1, A1, and A2. Dominica	<i>S. insula</i> Eertmoed
-.	Without brown areola at setal bases on veins indicated above	11
11.	Frontal sutures distinct, frons uniformly brown; subgenital plate brown, not bordered posteriorly with black. Dominica	<i>S. dominica</i> Eertmoed
-.	Frontal sutures indistinct, frons markings indistinct; subgenital plate brown, bordered posteriorly with black. Guyana.	<i>S. guyana</i> Eertmoed
12.	Phallosome anteriorly straight, with a mid, longitudinal fissure that divides in two the anterior half. Endophallus well defined. Canal Zone, Panama	<i>S. panamensis</i> .
-.	Phallosome anteriorly concave in the middle, without a mid, longitudinal fissure. Endophallus not well defined. Bahia, Brazil	<i>S. caatinga</i> n. sp.

Spurostigma caatinga n. sp. (Male)

(Figs. 1–11)

Color (in 80% ethyl alcohol). Body yellowish brown. Compound eyes black, ocelli hyaline, with interommatidial setae and each with an ochre centripetal crescent (Fig. 1). Scape brown, pedicel pale yellow, flagellum pale yellow, fl–fl10 with distal ends white (Fig.2); fl1 elongate, with a slender distal process (Fig. 3). Mx1-2 creamy white, Mx3 pale brown, Mx4 dark brown. Thorax brown, pleura pale brown and abdomen yellowish brown. Legs: coxae, trochanters and femora whitish, tibiae and tarsomeres brown (Fig. 4); pretarsal claw slender, with a preapical denticle (Fig. 5). Forewings almost hyaline, as illustrated (Fig. 6), veins brown, ending in a brown spot at wing margin. Hindwing (Fig. 7), almost hyaline throughout, veins brown.

Morphology. Forewing and hindwing Rs-M fused for a distance (Fig. 5). Lacinia broadening distally, outer cusp broad, with nine denticles (Fig. 8). Five distal labral sensilla, a central placoid, flanked by a pair trichoid-placoid. Hypandrium of two pieces, the distal one simple, broad, almost straight anteriorly and rounded posteriorly, setose as illustrated (Fig. 9). Phallosome (Fig. 10) simple, elongate, with a mid concavity anteriorly; endophallus indistinct, aedeagal arch slender, strongly sclerotized; external parameres long, stout, distally rounded. Paraprocts robust, almost semi-elliptic, with setae as illustrated (Fig.11); sensory fields elliptic, with 34 trichobothria on basal rosettes. Epiproct broad, trapeziform, with setae as illustrated (Fig.11).

Measurements (in microns): FW: 2833, HW: 2012, F: 597, T: 995, t1: 388, t2: 121, cttl: 34, fl:314, f2: 170, f3: 166, f4: 143, f5: 117, f6: 117, f7: 101, f8:97, f9: 86, f10: 82, f11: 83, IO: 382, D:183, d: 116, IO/d: 3.29, PO: 0.64.

Specimens studied. Holotype male, 1 paratype male. **BRAZIL.** Bahia. Milagres, 12°54'21.9"S: 39°50'46.7"W. Alt.730m. 25.III.2012. Beating branches of trees and shrubs with dead leaves, Silva-Neto, A. M.

Etymology. The specific name refers to the caatinga biome, where the two specimens were collected..

Discussion. The 13 described species of *Spurostigma* are strictly neotropical and are found in three of the subregions established by Morrone (2001). Nine species occur in the Caribbean subregion : *S. cuba* Eertmoed, *S. jimenezi* Badonnel, (Cuba); *S. dominica* Eertmoed, *S. insula* Eertmoed, (Dominica); *S. nesiotis* Eertmoed, *S. portoricense* Eertmoed, (Puerto Rico); *S. panamense* Eertmoed, (Panama); *S. epirotica* Eertmoed, (Mexico). Two species have been recorded in the Amazonian subregion: *S. guyana* Eertmoed, (Guyana) and *S. mesembria* Eertmoed, (Suriname), and two species occur in the Chaco subregion: *S. boliviana* García Aldrete, and *S. caatinga* n. sp. (Brazil) (Fig.12).

S. caatinga is the first recorded for the caatinga province (a subdivision of the Chaco subregion, Morrone, 2001). *S. caatinga* belongs in Section B of García Aldrete (2009), characterized by having the forewing veins Rs-M fused for a distance or diverging from a point; in that section, it is similar to *S. panamensis* Eertmoed, from which it differs mostly on the structure of the phallosome. Figure 12 shows that both *S. boliviana* García Aldrete, and *S. caatinga* Silva-Neto & García Aldrete, are isolated from the presently known main area of distribution of the genus.

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