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PSEUDOSCORPIONES OF THE TRIBE CHERNETINI (CHERNETIDAE) FROM THE COLOMBIAN CARIBBEAN. NEW SPECIES AND AN IDENTIFICATION KEY

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Abstract: In the course of an investigation on pseudoscorpions in the Caribbean region of Colombia, five new species of the Chernetidae family were discovered, and are here described as new species: *Gomphochernes volkeri* **sp. n.**, *Parachernes* (*P.*) *adelaidae* **sp. n.**, *Parachernes* (*P.*) *monteriacittatus* **sp. n.**, *Parachernes* (*P.*) *foreroa* **sp. n.** and *Sphenochernes attazi* **sp. n.** Three species, *Americhernes incertus* Mahnert, 1979, *Americhernes bethaniae* Mahnert, 1979 and *Parachernes* (*P.*) *plumosus* (With, 1908), are reported for the first time from Colombia. Ecological comments, distribution maps with previous and new records and an identification key to the Colombian species of the family Chernetidae are included.
Key words: Pseudoscorpiones, Chernetidae, distribution, microhabitats, taxonomy, new species, zoogeography, Colombia.

Pseudoscorpiones de la tribu Chernetini (Chernetidae) del Caribe colombiano. Especies nuevas y clave de identificación
Resumen: Durante una investigación sobre pseudoescorpiones en la región Caribe de Colombia, se descubrieron cinco especies nuevas de la familia Chernetidae, que son aquí descritas: *Gomphochernes volkeri* **sp. n.**, *Parachernes* (*P.*) *adelaidae* **sp. n.**, *Parachernes* (*P.*) *monteriacittatus* **sp. n.**, *Parachernes* (*P.*) *foreroa* **sp. n.** y *Sphenochernes attazi* **sp. n.** Se citan de Colombia por primera vez *Americhernes incertus* Mahnert, 1979, *Americhernes bethaniae* Mahnert, 1979 y *Parachernes* (*P.*) *plumosus* (With, 1908). Se incluyen comentarios ecológicos, mapas de distribución con previos y nuevos registros, y una clave de identificación para las especies de la familia Chernetidae de Colombia.
Palabras clave: Pseudoscorpiones, Chernetidae, distribución, microhábitats, taxonomía, especies nuevas, zoogeografía, Colombia.

Taxonomy / Taxonomía: *Gomphochernes volkeri* **sp. n.**, *Parachernes* (*P.*) *adelaidae* **sp. n.**, *Parachernes* (*P.*) *monteriacittatus* **sp. n.**, *Parachernes* (*P.*) *foreroa* **sp. n.** and *Sphenochernes attazi* **sp. n.**

Introduction

The family Chernetidae can be considered cosmopolitan, represented by 701 valid species. It is the most diverse family of the order, found all over the world, occurring under the bark of trees, in leaf litter, in caves, as well as a variety of other habitats (Harvey, 1992, 2013, 2018). Although it constitutes a quarter of the generic diversity of order, the highest classification is poorly resolved (Murienne *et al*., 2008; Harvey, 2018); three subfamilies are recognized, these are defined by the shape and appearance of the female spermathecae (Muchmore, 1975): Goniochernetinae with 10 species, Lamprochernetinae with 125 species, and the subfamily Chernetinae, that appears to represent a paraphyletic assemblage of genera that cannot be placed in either of the other subfamilies (Harvey, 1995, 2013, 2018); the latter being divided into two tribes: Chernetini Menge with 567 species and Myrmochernetini Chamberlin with 5 species respectively (Harvey, 2013).

In Colombia 46 pseudoscorpion species, distributed in 12 families, have been reported, most of the studies are concentrated in the Andean region; however, the Caribbean region has the lowest number of reports (Torres & Bedoya-Roqueme, 2018). The Caribbean region is located in the north of the country and its extension represents 11.6% of the total national territory of Colombia, mostly flat land (average of 130 m asl), some mountain areas and desert areas. However, the Sierra Nevada de Santa Marta stands out with heights of up to 5.775 m asl, although part of the territory is framed by the foothills of the three mountain ranges (Meisel-Roca & Pérez, 2006). The chernetids occupy a wide variety of terrestrial habitats including leaf litter, soil, humus, caves, and under the bark of trees and logs (Harvey, 2018). Some species have close associations with other animals, as commensals in the burrows and pelage of mammals, in the nests and feathers of birds or on arthropods (Beier, 1948; Muchmore, 1971; Durden, 1991; Finlayson *et al*., 2015; Harvey *et al*., 2012; Turienzo *et al*., 2010; Harvey, 2018). According to the above mentioned and taking into account different ecosystems present in the Caribbean region (dry forest, humid forest, savannah areas, swamps, wetlands, mangrove ecosystems, and deserts), some authors as Weygoldt (1969), Gabbutt (1970), de Moráis *et al*. (1997), Aguiar *et al*. (2006) suggest a close relationship of the abundance of pseudoscorpions with the plant structure of the zone; likewise, these arachnids are found occupying one or more microhabitats (Battirola *et al*., 2017; Torres & Bedoya-Roqueme, 2018). Therefore, with more sampling effort exploring diverse habitats and using different sampling techniques, can be obtained greater values of richness of the pseudoscorpions fauna (Bedoya-Roqueme *et al*., 2017a). For the Caribbean region only the reports made by Banks (1909) and Muchmore (1982) for the localities of Río Frío, Santa Marta and Sevilla from the department of Magdalena are known; as well as, recent records from dry forest areas, savannas, mangrove areas of the departments of Córdoba and Sucre (Bedoya-Roqueme *et al*., 2014, 2015, 2016, 2017a; Bedoya-Roqueme, 2015; Bedoya-Roqueme & Quirós Rodríguez, 2018; Quirós-Rodríguez *et al*., 2015; Torres & Bedoya-Roqueme, 2018), and islands areas of the Bolivar and Córdoba departments (Bedoya-Roqueme & Quirós−Rodríguez, 2019). Due to the heterogeneity of ecosystems in the region, the accelerated deterioration of these as a result of

economic activities such as monocultures, livestock, mining, and the excessive use of timber species of high demand (Torres & Bedoya-Roqueme, 2018), has been considered fundamental conduct studies focused on knowing the fauna of pseudoscorpions in this Colombian region, resulting in the new species described and the new reports made in this study.

Materials and Methods

The specimens identified were deposited in the pseudoscorpions collection of the Entomology Laboratory of the University of Córdoba, Monteria, Colombia (LEUC). The specimens were subjected to dissection processes, a leg I and IV, a chelicera and a pedipalp, of which the chela was separated. The dissected portions have been returned after the study to a microvial and preserved in 70% ethanol in the same vial as the rest of each specimen. The specimens were studied using temporary mounts glycerin, a process carried out in the Entomology and Zoology laboratories of the University of Córdoba. The specimens were studied with the help of a microscope Carl Zeiss, plus Axiostar, Germany. Multifocal photographs were taken in the Microscopy laboratory of the University of Córdoba, with an HD digital camera attached to a Carl Zeiss stereomicroscope, Axiostar, and then fused by the image stacking software AxioVision Carl Zeiss (Rel.4.8.2. SP3). Measurements were taken using a micrometer attached to the Carl Zeiss stereomicroscope, Axiostar. Genital organs were observed after immersion in lactic acid for a few hours or longer, if necessary, or in 10% KOH solution. Terminology and mensuration mostly follow Chamberlin (1931), except for the nomenclature of the pedipalps, legs and with some minor modifications to the terminology of the trichobothria (Harvey, 1992), chelicera (Harvey & Edward, 2007; Judson, 2007) and face of appendages (Harvey *et al*., 2012). The measurements are expressed in millimeters (mm); for the carapace, chelicera and pedipalpal articles the ratio given is the length/breadth (L/B) measured dorsally and for the legs is the length/depth (L/D) measured laterally.

Abbreviations. Distribution of trichobothria on the chelal fingers (Chamberlin, 1931; Harvey, 1992): external trichobothria, fixed finger: ***et***: externo-terminal, ***est***: externo-subterminal, ***esb***: externo-subbasal, ***eb***: externo-basal; internal trichobothria, fixed finger: ***it***: interno-terminal, ***ist***: interno-subbasal, ***isb***: interno-subterminal, ***ib***: interno-basal; trichobothria movable finger, external surface: ***t***: terminal trichobothrium, ***st***: subterminal, ***sb***: subbasal, ***b***: basal. Cheliceral setae: ***es***: exterior seta, ***ebs***: externo-basal, ***bs***: basal, ***sbs***: subbasal, ***is***, interior, ***ls***: laminal, **gs**: galeal. Other abbreviations: Colombia*: first record for Colombia, ***ST***: tactile seta.

Results

Systematics

Family Chernetidae Menge, 1855

Subfamily Chernetinae Menge, 1855

Tribe Chernetini Menge, 1855

***Americhernes bethaniae* Mahnert, 1979**

Fig. 2b, 4, 14a.

MATERIAL EXAMINED. 2♂, Colombia, Sucre: Sincelejo, 9°18' 54.1"N, 75°23'18.9"W, 192 m asl, August 1, 2018, collected by hand on bark, dry forest, E. Bedoya-Roqueme leg. (LEUC, Ps-025).

DESCRIPTION. According to Mahnert (1979), *Americhernes bethaniae*, can be easily distinguished from other species of the genus by the smooth carapace (Fig. 2b), with a distinct median furrow and a subbasal furrow (Fig. 4a), two distinct eye-spots (Fig. 4a), with five setae in the anterior and posterior region, seven to ten in the posterior margin, L/B 1.2-1.3×. Chelicera with five setae on the hand, of which *sb*, *b* and *es* are terminally denticulate, the others being smooth, movable finger with lobe subapical, galea with 6 branches, serrula externa with 18-20 blades, rallum with three blades, distalmost larger and denticulate (Fig. 4b-4c). Tergites I-IV and XI undivided, V-X very narrowed, long setae, six to eight marginal setae; of them, one medial and one latero-medial tergite XI with 13 to 16 setae (including six tactile setae). Pedipalps (Fig. 4d), femur broader basally, 2.2-2.3×, patella 1.9-2.0×, hand with pedicel: 2.7-2.9×, hand with pedicel 1.7-1.8×, pedicel length 0.07, movable finger 0.35-0.37. Genital region on both sides with two to four simple setae, opening with two to three discal setae, posterior operculum of the ♀ with a central group of 10 to 12 short setae and six marginal setae, paired spermathecae, with long ducts, distally enlarged. Leg IV femur+patella 2.7-2.8×, tibia 4.3-4.4×, with one medial and one subbasal tactile seta, tarsus 3.3×, with one subapical and one subbasal long tactile seta, undivided arolia shorter than claws (Fig. 4f).

REMARKS. Measurements and ratios of pedipalps, granules of the carapacal mesozone and some other taxonomic characters, correspond to the description of *A. bethaniae* from Brazil (Mahnert, 1979: fig. 101-105). The specimens of dry forest from Sincelejo-Sucre (Colombia) slightly differ of the Brazilian specimens in the position of trichobothrium *isb* respect to *est,* similarly, the specimens present some differences in their body size, these are smaller than those described by Mahnert (1979), however, these differences can be attributed to intraspecific variations by the geographical distribution of the species, since all the diagnostic characters correspond to the species *A. bethaniae*. The specimens of Sincelejo (Colombia) were collected in detached bark, close to nests of *Paratemnoides nidificator* (Balzan, 1888). For some authors (Tizo-Pedroso & Del-Claro, 2014; Lacava *et al*., 2015) some Chernetidae species, such as *Parachernes* (*P.*) *melanopygus* Beier, 1959, and *Lustrochernes* sp., have been considered as social parasites of *P. nidificator*; more detailed study would be necessary before considering *A. bethaniae* as a social parasite of *P. nidificator*.

MEASUREMENTS (mm). Males: body length 2.1-2.4; Carapace 0.57-0.59/0.43-0.45. Pedipalp: trochanter 0.26-0.27/0.12-0.13, femur 0.42-0.43/0.20-0.22, patella 0.49-0.51/0.25-0.27, chela with pedicel: 0.79-0.80/0.27-0.29, hand with pedicel 0.51-0.53/0.27-0.29, pedicel length 0.07, movable finger 0.35-0.37. Leg I: femur 0.14-0.15/0.10-0.11, patella 0.17-0.18/0.10-0.11, tibia 0.17-0.18/0.07-0.09, tarsus: 0.15-0.16/0.05-0.06. Leg IV: femur+patella 0.64-0.69/0.23-0.24, tibia 0.43-0.45/0.09-0.10, tarsus 0.30-0.33/0.09-0.10.

DISTRIBUTION. Brazil, Colombia*.

***Americhernes incertus* Mahnert, 1979**

Fig. 2a, 14a.

MATERIAL EXAMINED. 1♀, Colombia, Córdoba, San Carlos, 8°44´44.6"N; 75°40´46.5"W, 56 m asl, November 13, 2017, collected by hand on bark, dry forest. E. Bedoya-Roqueme leg. (LEUC, Ps-024). 2 ♂, same data as female.

DIAGNOSIS. According to Mahnert (1979), *Americhernes*

incertus, can be easily distinguished from other species of the genus by carapace completely smooth (Fig. 2a), pronounced anterior furrow and subbasal furrow transversely rather discolored, two indistinct eye-spots, approximately 45 setae, of which four on the anterior margin and five to eight on the posterior margin. Tergite I-III and XI without division, the rest incomplete or very narrowly divided; tergite I-III with 6-8 setae, the others with 6-10 posterior setae and 1 lateral and 1 marginal medial; XI 10 setae (2 tactile setae, 2 setae medial disks extended). Genital region opercula with a central group of 7-9 short setae and 6 marginal setae; paired spermathecae, typical of the genus. Pedipalps: femur, medial patella and mediodistal hand with granulated surface, femur and patella without pseudotactile setae; hand with 3 trichobothria; femur 1.9-2.2×, patella 1.8-2.0×. According to Mahnert (1979), *A. incertus* presents a number of existing trichobothria that varies between 9 and 12, the reduction mainly occurs in the movable finger chelal (*sb*, *st*, also *b*) and more rarely *eb* in the fixed finger; the most frequent being ten trichobothria, *sb* and *st* absent (Mahnert 1979: fig. 116).

MEASUREMENTS (mm). Female: body length 2.7 Carapace 0.46/0.36. Pedipalp: trochanter 0.28/0.14, femur 0.45/0.15, patella 0.36/0.16, chela with pedicel: 0.50/0.20, hand with pedicel 0.37/0.20, pedicel length 0.06, movable finger 0.26. Leg I: femur 0.15/0.09, patella 0.17/0.08, tibia 0.18/0.07, tarsus: 0.13/0.06. Leg IV: femur+patella 0.51/0.18, tibia 0.34/0.11, tarsus 0.18/0.07. Males: body length 2.1-2.3; Carapace 0.59-0.60/0.45-0.46. Pedipalp: trochanter 0.27-0.29/0.13-0.14, femur 0.43-0.45/0.21-0.22, patella 0.50-0.51/0.26-0.28, chela with pedicel: 0.80-0.82/0.28-0.29, hand with pedicel 0.50-0.53/0.28-0.29, pedicel length 0.07, movable finger 0.36-0.37. Leg I: femur 0.14-0.15/0.09-0.10, patella 0.17-0.19/0.09-0.10, tibia 0.16-0.18/0.07-0.09, tarsus: 0.15-0.16/0.04-0.05. Leg IV: femur+patella 0.58-0.60/0.17-0.19, tibia 0.23-0.25/0.09-0.10, tarsus 0.16-0.18/0.05-0.06.

DISTRIBUTION. Brazil, Colombia*.

Gomphochernes volkeri sp. n.

Fig. 2c, 5, 14a.

MATERIAL EXAMINED. Holotype ♂, Colombia, Córdoba, Tierralta: TuisTuis: Tutifruti farm, 8°2'2.881" N, 76°5'29.993" W, 175 m asl, December 3, 2014, collected by hand on bark, humid forest, E. Bedoya-Roqueme leg. (LEUC, Ps-023). Paratypes. 4 ♂♂, Colombia, same location data as holotype, December 3, 2014, collected by hand on bark, humid forest, E. Bedoya-Roqueme leg. (LEUC, Ps-023).

DIAGNOSIS. *Gomphochernes volkeri* **sp. n.** is characterized by the position of trichobothria on fixed chelal finger: *isb* slightly distad of *est*, *ist* distad of *esb* and *ib* and trichobothria *it* and *et* distad of middle; the ratio of the pedipalpal femur 2.1-2.3× and patella 1.8-1.9×; by the number of teeth present in the chelal fingers, fixed finger with 27-29 teeth, with two prolateral accessory teeth and without retrolateral accessory teeth, movable chelal finger with 30-32 teeth, three prolateral accessory teeth and one retrolateral accessory tooth; tarsus of the leg IV has an additional internal tooth in one of the claws.

DESCRIPTION (female unknown). Adults: carapace and pedipalps reddish brown, all legs light yellow (Fig. 2c). Carapace longer than broad, completely smooth, with two eye-spots, six setae on the anterior margin and 10-12 setae on the posterior margin, approximately 30-40 simple and acuminate setae on the carapace, distinct marked medial transverse furrow and indistinct subbasal furrow, granules of metazone wide and circular (Fig. 5a). Tergites completely divided (except tergites I-III and XI), smooth surface, all setae simple and acuminate. Holotype ♂: tergites I-XII: 8: 8: 8: 10: 10:10: 10: 10: 10[2ST]: 10[4ST]: 12[6ST]: 2, tergites of VII-XI each with two lateral setae; sternites II-XII: 12: (3) [(2-2)/12](3): (1) 8 (1): 8: 8: 8: 8: 10: 10[2ST]: 12 [4TS]: 2. Paratype ♂♂: tergites I-XII: 8: 8: 8: 8-10: 8-10: 8-10: 8-10: 8-10 :10-12[2ST]: 10-12[4ST]: 12[6ST]: 2; tergites VII-XI each with two latero-medial setae on each side; sternites II-XII: 10-12: (3) [(2-2)/12](3): (1) 8 (1): 8: 8: 8: 8-10: 8-10: 10-12[2ST]: 10-12 [4TS]: 2. Genital area: anterior operculum with 12 simple and acuminate setae, posterior operculum 10 to 12 marginal simple and acuminate setae, and six discal setae (Fig. 5g). Pleural membrane longitudinally striated. [(2-2)/12]

Chelicera with five acuminate setae on the hand; rallum with three blades (Fig. 5c), the distal one denticulate; fixed finger with three teeth, movable finger with tooth-like subapical lobe; galea slender with five branches; serrula exterior with 17 blades (Fig. 5b, 5c).

Pedipalp robust, reddish brown color, smooth surface, all the setae acuminate (Fig. 5d). Trochanter 1.75× (paratypes ♂♂ 1.73-1.75×); femur 2.33× (2.33-2.35×); patella 1.93× (1.93-1.95×); chela with pedicel 3.16× (3.16-3.17×); hand with pedicel 1.6× (1.6-1.8×). On chelal finger, trichobothrium *isb* proximad of *it* and *et*; on movable finger, only *t* proximad of middle, *st* closer to *t* than to *sb*, nodus ramosus proximad of *t*; chelal fixed finger with 27-29 teeth, with two prolateral accessory teeth and without retrolateral accessory teeth, movable chelal finger with 30-32 teeth, three prolateral accessory teeth and one retrolateral accessory tooth (Fig. 5d, 5e). Venom apparatus well developed in the movable finger and vestigial in the fixed finger (Fig. 5e).

Legs robust, all legs light yellow, surface with some granulations, all setae acuminate. Leg I femur 0.83-0.91×, patella 2.4-2.6×, tibia 2.6-3.2×, tarsus 4.4-5.5× longer than deep. Leg IV femur+patella 2.8-2.9×, tibia 4.3-4.5×, tarsus 3.0-3.6× longer than deep, tarsus with a subterminal short and smooth tactile seta curved; undivided arolia shorter than claws; has an additional internal tooth in one of the claws (Fig. 5f).

MEASUREMENTS (mm). Holotype male (male paratypes in parenthesis): body length 2.3 (2.1-2.3); Carapace 0.67/0.63 (0.65-0.67/0.61-0.63). Pedipalp: trochanter 0.28/0.16 (0.26-0.28/0.14-0.16), femur 0.56/0.24 (0.55-0.56/0.22-0.24), patella 0.54/0.28 (0.54-0.56/0.27-0.28), chela with pedicel: 0.98/0.31 (0.96-0.98/0.30-0.31), hand with pedicel 0.57/0.31 (0.55-0.57/0.30-0.31), pedicel length 0.04, movable finger 0.48 (0.48-0.46.). Leg I: femur 0.11/0.12 (0.10-0.11/0.12), patella 0.27/0.11 (0.26-0.27/0.10-0.11), tibia 0.24/0.09 (0.23-0.24/0.07-0.09), tarsus: 0.22/0.05 (0.21-0.22/0.04-0.05). Leg IV: femur+patella 0.45/0.16 (0.45-0.46/0.14-0.16), tibia 0.34/0.09 (0.32-0.34/0.07-0.09), tarsus 0.18/0.06 (0.16-0.18/0.05-0.06).

ETYMOLOGY. The specific epithet *volkeri* is in honor to Dr. Volker Mahnert (1943-2018) in recognition of his great contribution to a better and wider knowledge of the pseudoscorpions fauna.

REMARKS. The genus *Gomphochernes* Beier 1932, is currently represented by three species *G. communis* (Balzan,

1888), *G. depressimanus* (With, 1908) and *G. perproximus* Beier, 1932, endemic of America, distributed in Argentina, Brazil, Colombia, Dominican Republic, Ecuador, Mexico, Paraguay, Peru, Saint Vincent and the Grenadines, Trinidad and Tobago, Uruguay and Venezuela. According to the description made by and to the taxonomic key proposed by Mahnert *et al.* (2011), *Gomphochernes volkeri* **sp. n.** differs from the other species as follows: from *G. depressimanus* and *G. perproximus* by the length pedipalp femur and patella, femur 0.60 mm, patella 0.62 mm in *G. depressimanus* and femur 0. 47 mm (♂♂), 0.57 mm (♀), patella 0.48 mm (♂♂), 0.58 mm (♀); moreover, by the ratios of the chela without pedicel in *G. depressimanus* and 2.8× in *G. perproximus*, and position of trichobothrium *isb* almost level *est*, *ist* distad of *esb* and *isb*, trichobothria *it* and *est* distad of middle. *G. volkeri* **sp. n.** resembles *G. communis*, however it differs by the pedipalp femur 2.1-2.4× and patella 1.9-2.1×, by the length of pedipalp femur 0.69 mm, of patella 0.70 mm, and position of trichobothrium *ist* close to the same level of *ib*, proximad of *esb* and distad of *isb* and by the number of teeth in the chelal fingers, fixed finger with 27-29 teeth, with two prolateral accessory teeth and without retrolateral accessory teeth, movable chelal finger with 30-32 teeth, three prolateral accessory teeth and one retrolateral accessory tooth.

Distribution. It is only known from the type locality **(**Colombia) (Fig. 14a).

***Parachernes* (*Parachernes*) *adelaidae* sp. n.**
Fig. 2d, 2e, 3a, 6, 7, 14b.

Material examined. Holotype. 1 ♀, Colombia. Córdoba, San Antero: Punta Nisperal, 9°23'35.25"N, 75°47'16.70"W, 1 m asl, April 23, 2018, collected by hand on bark of *Laguncularia racemosa* (L.) C.F. Gaertn, mangrove forest, E. Bedoya-Roqueme leg. (LEUC, Ps-026). Paratypes. 4 ♂, 2 ♀, same data as holotype.

Diagnosis. *Parachernes* (*Parachernes*) *adelaidae* **sp. n.** is characterized by the distribution of the trichobothria *it* proximad of *est* and distad of *isb*, trichobothrium *ib*, *isb* and *ist* grouped at the base of the chelal fixer finger, trichobothrium *it* almost level *ist*, trichobothrium *est* distad of *isb*; pedipalpal femur ♀ 2.16-2.33× (♂, 2.06-1.96×), patella ♀ 2.01-2.07× (♂ 2.1-2.3×), hand with pedicel ♀ 2.40-2.42× (♂s 2.0-2.1); fixed finger with 35 teeth; movable finger with 37 teeth, retrolateral accessory teeth absent, a single prolateral accessory tooth present; genital region of the ♀ with a cribrate plate.

Description. Adults, carapace and pedipalps dark reddish brown (Fig. 2d, 2e). Carapace granulated, denticulate setae; ♀ 1.20-1.21× as long as broad (♂ 1.17-1.8×), shape of the granules of the metazone as closely established stars (Fig. 3a); two deep transversal furrows, the medial furrows deeper and marked, the subbasal one proximad of the posterior margin and less deep; posterior margin with two white areas; four setae on the anterior margin and six setae on the posterior margin, ♀ with a total of 46 setae (♂, with 42) (Fig. 6a). All the tergites divided (except XI), dark reddish-brown color, surface granulated; tergite I with a small white area on the anterior margin that posteriorly decreases in size; IV-VII tergites with a white zone of equal size towards the lateral margin; strongly striated pleural membrane. Chaetotaxy of tergites holotype ♀: I-XII: 12: 10: 10: 12: 12: 10: 10: 8: 10: 12[2ST]:8[2ST]: 2, paratypes ♀♀ I-XII: 12: 10-12: 10-12: 10-12: 12-14: 12-14: 8-10: 10-12: 10-12: 12-14[2ST]: 8-10[2ST]: 2. Chaetotaxy of tergites paratypes ♂♂: I-XII: 10-12: 10-12: 10-12: 10-12: 12-14: 12-14: 12-14: 10-12: 10-10: 6-8[2ST]: 6-8[2ST]: 2. Chaetotaxy of sternites ♀ holotype: II-XII: 18: (3)10(3): (1)12(1): 12: 12: 12:12: 12: 12: 8[2ST]: 4[2ST]: 2; hemitergites IV-V with a medial seta, hemitergites VI-VIII with two medial setae, hemitergite IX with two medial setae and a discal seta. Chaetotaxy of sternites paratypes ♀♀: II-XII: 18: (3)10(3): (1)10-12(1): 10-12: 10-12: 10-12: 10-12: 10-12: 6-8 [2ST]: 4-6[2ST]: 2. Chaetotaxy of sternites paratypes ♂♂: II-XII: 26-28: (3)3+3,10(3): (1)10-12(1): 10-12: 10-12: 10-12: 10-12: 8-10: 8-10[2ST]: 6-8[2ST]: 2; additionally, sternite III with six medial setae, hemisternite VI-X with one lateral setae and one discal seta. Genital region of the female holotype with a large cribrate plate on the anterior operculum, a cluster of 12 setae on it and six marginal setae, posterior operculum with 10 marginal setae, spermathecae as two short tubes with expanded sacks (Fig. 7a). Genital region of the paratype males with a cluster of 28 acuminate setae on the anterior operculum and three short setae on each side, posterior operculum with ten marginal setae (Fig. 7b).

Chelicera with five setae on the hand, setae *bs*, and *sbs* serrated, *es* long and acuminate; rallum with three blades (Fig. 6c), the distal one denticulate; fixed finger with two teeth, movable finger with subapical lobe tooth-like; galea slender, with several bifid branches; serrula exterior with 18 blades (♂ 16 blades) (Fig. 6b, 6c).

Pedipalps dark reddish brown, surface granulated (Fig. 2d, 2e); femur more robust and long in the ♀ 2.16-2.33× (♂, more slender and short, 1.9-2.06×) (Fig. 6d, 6e); patella ♀ 2.01-2.07× (♂, 2.0-2.3×); hand with pedicel ♀ 2.42× (♂, 2.1×); sexual dimorphism in the prolateral margin of the pedipalpal hand (Fig. 6d-6e), males hand more rounded and globose than that of females (Fig. 6d, 6e), ♀ hand without pedicel 1.26-1.27× (♂, 2.57-2.6×); trichobothria *ib*, *isb*, *it*, and *ist* grouped at the base of the chelal finger fixer, trichobothrium *it* at the same level of *ist*, *est* distad of *isb* and midway between *it* and *ist* (Fig. 6f); pedipalp fingers lighter in colour than the hand and strongly gaping in lateral view, shorter than the hand with its pedicel; trichobothrium *st* on the movable chelal finger at the same level as *t* and *sb*, nodus ramosus slightly distad of *t*; fixed finger with 35 teeth; movable finger with 37 teeth, retrolateral accessory teeth absent (Fig. 6f); venom apparatus well developed in the movable finger and vestigial in the fixed finger (Fig. 6f).

Legs (females, males in brackets): Leg I light brown, femur 1.0-1.1× (1.4-1.5×), patella 2.0-2.1× (1.3-1.4×), tibia 2.8-2.9× (3.2-3.3×), tarsus 4.4-4.6× (4.2-4.5×). Leg IV: femur + patella 2.1-2.2× (3.1-3.3×), tibia 3.7-3.8× (4.2-4.3×), tarsus 5.5-5.4× (5.8-6.0×) and with a tactile seta located in subdistal position, undivided arolia shorter than smooth claws (Fig. 6g).

Measurements (mm). Holotype ♀: body length 3.2 Carapace 0.92/0.76. Pedipalp: trochanter 0.43/0.21, femur 0.57/0.29, patella 0.66/0.33, chela with pedicel: 1.27/0.47, hand with pedicel 0.75/0.47, pedicel length 0.06, movable finger 0.63. Leg I: femur 0.23/0.16, patella 0.22/0.16, tibia 0.32/0.10, tarsus: 0.32/0.07. Leg IV: femur+patella 0.61/0.19, tibia 0.47/0.11, tarsus 0.41/0.07. Paratype ♀♀: body length 3.1-3.2 Carapace 0.92-0.96/0.76-0.79. Pedipalp: trochanter 0.43-0.47/0.21-0.24, femur 0.57-0.61/0.29-0.31, patella 0.66-0.70/

0.30-0.33, chela with pedicel: 1.27-2.1/0.47-0.50, hand with pedicel 0.75-0.79/0.47-0.50, pedicel length 0.06-0.07, movable finger 0.63-0.69. Leg I: femur 0.23-0.27/0.16-0.19, patella 0.22-0.26/0.16-0.19, tibia 0.32-0.36/0.10-0.13, tarsus: 0.32-0.36/0.07-0.10. Leg IV: femur+patella 0.61-0.65/0.19-0.20, tibia 0.47-0.51/0.11-0.14, tarsus 0.41-0.44/0.07-0.10. Paratype ♂♂: body length 1.9-2.1; Carapace 0.65-0.69/0.58-0.60. Pedipalp: trochanter 0.29-0.34/0.22-0.24, femur 0.52-0.56/0.22-0.24, patella 0.54-0.56/0.26-0.28, chela with pedicel: 1.0-1.1/0.40-0.42, hand with pedicel 0.44-0.53/0.29-0.30, pedicel length 0.07, movable finger 0.41-0.42. Leg I: femur 0.18-0.20/0.13-0.14, patella 0.26-0.27/0.09-0.10, tibia 0.24-0.26/0.07-0.09, tarsus: 0.22-0.23/0.04-0.05. Leg IV: femur +patella 0.45-0.46/0.20-0.21, tibia 0.36-0.38/0.09-0.10, tarsus 0.33-0.36/0.05-0.06.

Etymology. The specific epithet (*adelaidae*), is in honor of the author's mother, Adelaida Roqueme, for all her unconditional support and collaboration.

Remarks. *P.* (*P.*) *adelaidae* **sp. n.** differs from other previously species of the genus *Parachernes* and those described herein by the position of the trichobothrium *it* proximad of *est* and distad of *isb*, trichobothrium *ib*, *isb* and *ist* grouped at the base of the chelal fixer finger, trichobothrium *it* almost level *ist*, trichobothrium *est* distad of *isb*; trichobothrium *st* on the movable chelal finger at the longitudinal level as *t* and *sb*, equidistant between *t* and *sb*, and, at the same level as *est*, nodus ramosus slightly distad of *t*; spermathecae as two short tubes with expanded sacks.

By the granulation of carapacal metazone, the shape of the prolateral margin of the chelal hand and its ratio ♀ 2.16-2.33× (♂, 2.06-1.96×), ratio of the patella ♀ 2.01-2.07× (♂, 2.1-2.3×) *P.* (*P.*) *adelaidae* resembles *P.* (*P.*) *adisi* Mahnert, 1979 from Brazil, *P.* (*P.*) *argentatopunctatus* (Ellingsen, 1910) from Brazil and Guyana, *P.* (*P.*) *confraternus* (Banks, 1909) from Brazil. The new species differs from *P. adisi* by the position of trichobothrium on the fingers chelal and by the ratio of the chelal hand ♀1.60-1.64× (♂, 1.56×), the ♀ pedipalp patella ratio 2.28-2.3× (♂, 1.8×). Also, it differs from *P. argentatopunctatus* by the bright white-spots at the base of the carapace, in *P. adelaidae* separated from each other, the bright white-spots lateral only in the first tergite and from the IV-VII tergite, by the position of trichobothria *t* and *st* on movable finger distad of middle (see Beier, 1948; fig 3); chelal hand ♀ ratio 1.6×. Finally, it differs from the species *P. confraternus* (Banks, 1909) from Brazil by the two white-spots on the back margin of the carapace in *P. adelaidae,* separated from each other and without union, tergites strongly granulates, the bright white-spots lateral only in the first tergite and from the IV-VII tergite, by the less robust pedipalps, the femur pedipalp ratio 2.27×, patella 1.9×, chelal hand 1.3×; and the trichobothria *t*, *st* and *sb* at the same level on the movable chelal finger and spermathecae as two short tubes with expanded sacks.

The specimens of *P. adelaidae* were collected by hand, associated with the barks of *Rhizophora mangle* L. and *L. racemosa* in coastal and estuarine mangrove forest in the locality of Punta Nisperal and Cispatá bay, Municipality of San Antero, department of Córdoba (Fig. 1B).

Distribution. It is only known from the type locality **(**Colombia) (Fig. 14b).

***Parachernes* (*Parachernes*) *monteriacittatus* sp. n.**
Fig. 2f, 2g, 3b, 8, 9, 14b.

Material examined. Holotype, 1 ♀, COLOMBIA. Cordoba, Montería, Zona Urbana: 8°43'23.1"N 75°52'58.3"W, 12 m asl, August 15, 2018, collected by hand on bark of *Azadirachta indica* A. Juss. (Fig. 1D), Urban zone, E. Bedoya-Roqueme leg. (LEUC, Ps-027). Paratypes. 3 ♂, same data as holotype (LEUC, Ps-028).

Diagnosis. *Parachernes* (*Parachernes*) *monteriacittatus* **sp. n.** can be easily distinguished from the other species of the genus by the position of trichobothrium *est* approximately at the same level as *it*, trichobothrium *ist* distinctly proximad of *est* and slightly distad of *esb*, trichobothrium *st* on the movable finger equidistant between trichobothrium *t* and *sb*; pedipalpal femur ♀ 2.6× (♂, 2.83-3.42×), patella ♀ 1.93× (♂, 2.0-2.4×); the dark coloration of the pedipalp, with a lighter region in the apical zone of the segments, being the patella clearer in color than the other pedipalpal segments; by the number of teeth present in chelal fingers, fixed finger with 37 teeth and 3 prolateral teeth and 5 retrolateral teeth, movable finger with 43 teeth and 2 prolateral teeth and 3 retrolateral teeth; spermatheca shape as two elongated tubes with expanded sacks.

Description. Adults, carapace and pedipalps dark brown, tergites dark brown pigmented, all legs light yellow, which are shaded dark brown (Fig. 2f, 2g). Carapace granulated, denticulate setae, ♀ 1.2× (♂, 1.1-1.3×) as long as broad; with two distinct, granular, transverse furrows present, the subbasal one slightly closer to posterior margin than to median furrow (Fig. 8a); two eye-spots present; mesozone clearly granulate, irregular granules and very close together (Fig. 3b); posterior margin, with two white areas one each side; ♀ and ♂, anterior margin with 4 setae and one preocular seta on each side; ♀ and ♂ with 6-8 setae on posterior margin (Fig. 8a). Tergites dark brown, very sclerotized, all tergites divided (except I and XI), scaly surface, tergite I with a small whitish, shiny area, close to the posterior margin, tergites IV-VI with a whitish zone of equal size towards each lateral margin, the whitish zone of tergite VII very small; pleural membrane strongly striated (Fig. 2f, 2g). Chaetotaxy of tergites holotype ♀, I-XII: 8: 8: 8: 8: 8: 8: 10: 10: 10: 8[2ST]: 8[2ST]: 2. Chaetotaxy of tergites paratypes ♂♂, I-XII: 8-10: 8-10: 8-10: 8-10: 8-10: 8-10: 10-12: 10-12: 10-12: 6-8[2ST]: 6-8[2ST]: 2, additionally, males and females with two lateral setae on each tergites IV-XI. Chaetotaxy of sternites holotype ♀: II-XII: 16: (3)10(3): (1)12(1): 12: 12: 12: 12: 10: 10[2ST]: 10[2ST]: 2. Chaetotaxy of sternites paratypes ♂♂: II-XII: 28-32: (3)3+3,12 (3): (1)10-12(1): 10-12: 10-12: 10-12: 10-12: 10-12: 8-10[2ST]: 8-10[2ST]: 2, all sternites divided, except XI undivided and sclerotized, dark brown. Genital region of ♀ holotype with a set of 16 acuminate setae on the anterior operculum and ten setae on the margin of posterior operculum, spermatheca consisting of two elongated tubes with expanded sacks (Fig. 9a). Genital region of ♂ with a set of 28 to 32 acuminate setae on the anterior operculum, three very short setae proximad of the genital opening and with 12 setae acuminate on the margin of the posterior operculum (Fig. 9b).

Chelicera, ♀ and ♂♂, with five setae on the hand, setae *bs*, and *sbs* serrated; rallum with three blades (Fig. 8c), the distal one denticulate on anterior margin; fixed finger with three teeth, movable finger with tooth-like subapical lobe;

galea slender, with several bifid branches; serrula exterior with 16 blades (Fig. 8b, 8c).

Pedipalps, robust, smoothly granulate and bright surface, all setae clavate, dark brown color, with lighter areas in the apical zone of the segments (Fig. 2f, 2g); patella lighter than the other segments (Fig. 2f, 2g); trochanter with a small and rounded dorsal hump, ♀ 1.65× (♂, 1.8-2.1×); femur elongated (Fig. 8d, 8e), ♀ 2.03× (♂, 2.2-2.6×); patella robust, (Fig. 8d, 8e), ♀ 1.93× (♂, 2.0-2.4×) ×; chela with rounded hand (Fig. 8d, 8e), chela with pedicel ♀ 2.6× (♂, 2.83-3.42×), hand with pedicel, ♀ 1.56× (♂, 1.67-2.02×); chelal fingers as long as the hand without pedicel, movable finger without curvature, chelal hand slightly granulate (Fig. 8f). Trichobothrium *et* distally, trichobothria *est* at the same level as *it*, trichobothrium *ist* distad of *est* and proximad of *esb*, trichobothrium *st* on the movable finger equidistant between trichobothrium *t* and *sb*; long venom duct, nodus ramosus proximad of *t* (Fig. 8f). Fixed finger with 37 marginal teeth (♂, 35-37 teeth), additionally with three retrolateral teeth and five prolateral teeth (♂, three retrolateral teeth and four prolateral teeth) (Fig. 8f); movable finger with 43 marginal teeth (♂, 40-43 teeth), additionally with two prolateral teeth and three retrolateral teeth (♂, without prolateral teeth and with three retrolateral teeth) (Fig. 8f). Venom apparatus well developed in the movable finger and vestigial in the fixed finger (Fig. 8f).

Legs (female, males in brackets), all legs light yellow, with shaded dark brown areas, surface smooth, all setae acuminate. Leg I: femur 1.3× (1.3-1.4×), patella 1.6× (1.8-1.9×), tibia 2.3× (2.9-3.0×), tarsus 2.5× (3.1-3.2×). Leg IV: femur + patella 2.3× (2.6-2.8×), tibia 3.9× (3.4-3.6×), tarsus 3.3× (3.6-3.8×), tarsus with a tactile seta, located in the subbasal position of the segment, undivided arolia shorter than smooth claws (Fig. 8g).

Measurements (mm). Holotype ♀: body length 3.1; Carapace 0.71/0.59. Pedipalp: trochanter 0.33/0.20, femur 0.55/0.27, patella 0.56/0.29, chela with pedicel: 1.02/0.39, hand with pedicel 0.61/0.39, pedicel length 0.09, movable finger 0.50. Leg I: femur 0.22/0.16, patella 0.27/0.16, tibia 0.28/0.12, tarsus: 0.23/0.09. Leg IV: femur+patella 0.52/0.22, tibia 0.36/0.09, tarsus 0.23/0.07. Paratypes ♂♂: body length 1.9-2.3; Carapace 0.65-0.69/0.59-0.63. Pedipalp: trochanter 0.28-0.32/0.16-0.19, femur 0.49-0.53/0.22-0.26, patella 0.51-0.55/0.25-0.29, chela with pedicel: 0.95-0.99/0.34-0.39, hand with pedicel 0.56-0.60/0.34-0.39, pedicel length 0.07-0.09, movable finger 0.46-0.49. Leg I: femur 0.17-0.21/0.13-0.17, patella 0.23-0.26/0.12-0.16, tibia 0.23-0.27/0.08-0.12, tarsus: 0.18-0.22/0.06-0.09. Leg IV: femur+patella 0.47-0.51/0.18-0.21, tibia 0.31-0.35/0.09-0.12, tarsus 0.18-0.22/0.05-0.07.

Etymology. The specific epithet (*monteriacittatus*), results from *Monteria* = name of the city where most of the specimens of the new species were found and from the word *Cittadino* (Italian = *Cittadino*) term to refer to who lives in town.

Remarks. *Parachernes* (*P.*) *monteriacittatus* differs from other species of the genus and the species described in this study by the position of the trichobothrium *est* almost level *it*, *ist* distinctly proximal and almost level *esb*, *st* on the movable finger equidistant between *t* and *sb*; ratios of pedipalpal femur: ♀ 2.6× (♂, 2.83-3.42×) and patella ♀ 1.93× (♂, 2.0-2.4×); dark coloration of the pedipalp, with a lighter region in the apical zone of the segments, being the patella clearer than the other pedipalpal segments; number of teeth present in the chelal fingers, fixed finger 37 teeth, additionally with three prolateral teeth and five retrolateral teeth, movable finger with 43 teeth, additionally with two prolateral teeth and three retrolateral teeth; spermatheca shape as two elongated tubes with expanded sacks. By the shape and appearance of the granulation of the mesozone of the carapace, the proportions of the pedipalp and the coloration, the new species resembles *P. argentatopunctatus*, *P. crassimanus* (Balzan) and *P. confraternus*; however, differs from *P. argentatopunctatus* by the measurements and proportions of the pedipalp, femur 0.53/0.23 mm (2.3×); patela 0.55/0.25 mm (2.2×), hand with pedicel 0.59/0.37 mm (2.8×), the coloration of the tergites I-IV, the granulation of the last tergites, more granulated in *P. monteriacittatus*. Similarly, it differs from *P. crassimanus* (Balzan) in the position of the trichobothrium *it* proximad of *et*, *ist* distad of *it* and close to *est*, *st* on the movable finger closer to *t* that to *b*. Finally, it differs from *P.* (*P.*) *confraternus* by the tergites IV-VIII with white spots (in *P. monteriacittatus* tergites IV-VI with white spots), by the measurements and proportions of the pedipalp, femur 0.53/0.25 mm (2.3×); patela 0.60/0.31 mm (2.0×).

The species *P. monteriacittatus*, was collected in tree bark of *Azadirachta indica* A. Juss. in parks and green zones of the city of Monteria department of Córdoba (Fig. 1d).

Distribution. It is known only from the type locality **(**Colombia) (Fig. 14b).

***Parachernes* (*Parachernes*) *foreroa* sp. n.**
Fig. 2h, 3c, 10-11, 14b.

Material examined. Holotype, 1♀, Colombia. Atlántico, Barranquilla: 11°02'09.9"N 74°51'33.5"W, 2 m asl, July 28, 2018, collected by hand on bark of *Avicennia germinans* L., mangrove forest, E. Bedoya-Roqueme leg. (LEUC, Ps-028). Paratypes 2 ♂, same data as holotype.

Diagnosis. *Parachernes* (*Parachernes*) *foreroa* **sp. n.** can be easily distinguished from the other species of the genus by the shape of the granules of the metazone on carapace, by the distribution of trichobothrium *st* closer to *sb* and *b* than to t, forming a group at the base of the chelal movable finger, trichobothrium *est* close to the same level of *it*, *ist* proximad of *ib* and by the shape of the prolateral margin of the chelal hand. Also by the light zones on the apical margin of the segments of the pedipalps and the fingers lighter than the chelal hand; the pedipalpal femur ♀ 1.9× (♂, 2.04-2.06×) and patella ♀ 1.8× (♂, 2.02-2.03×); by the number of teeth present in the chelal fingers, fixed finger with a row of 34 teeth and additionally with two prolateral and six retrolateral teeth, movable finger with a row of 38 teeth and with two prolateral and seven retrolateral teeth; the spermathecae shape consisting of two short tubes with expanded sacks.

Description. Adults, carapace and pedipalps dark brown, tergites dark brown pigmented, all legs light yellow, which are shaded dark brown (Fig. 2h). Carapace granulated; denticulate setae; ♀ and ♂ 1.09-1.1× longer than broad; with two distinct, granular, transverse furrows present, the subbasal one slightly closer to posterior margin than to median furrow (Fig. 10a); with two eye-spots present (Fig. 10a); mesozone with irregular granules close together (Fig. 3c); posterior margin, with two white areas; both ♀ and ♂ with 4 setae on anterior

margin, one preocular setae on each side and 8-10 setae on posterior margin (Fig. 10a). Tergites dark colored; all divided (except I and XI); surface scaly; tergite I with a white band proximad of the posterior margin, growing towards the lateral margin; tergites IV-VII with a white zone of equal size towards the lateral margin (Fig. 2h); pleural membrane strongly striated. Chaetotaxy of tergites holotype ♀: I-XII: 6: 6: 6: 8: 8: 8: 10: 8: 8: 8: 8[4ST]: 2. Chaetotaxy of paratypes ♂♂: I-XII: 6-8: 6-8: 6-8: 6-8: 8-10: 8-10 :8-10 :8-10: 6-8: 6-8: 6-8[4ST]: 2. Tergites I-IX with two median discal setae and two lateral setae, tergite X with two median discal setae and three lateral setae, all setae clavate. Chaetotaxy of sternites holotype ♀: II-XII: 18: (3)10(3): (1)8(1): 8: 8: 8: 10: 10: 8: 8[4ST]: 2. Chaetotaxy of sternites paratype ♂♂: II-XII: 25: (3)3+3,8 (3): (1)6-8(1): 6-8: 6-8: 6-8: 8-10: 8-10: 6-8: 6-8[4ST]: 2; all sternites divided, except XI, sclerotized, dark brown, sternites IV-XI with one discal setae additionally. Genital region of the female with a set of 18 setae acuminate on the anterior operculum and ten setae acuminate on the margin of the posterior operculum, spermathecae consisting of two short tubes with sacks expanded (Fig. 11a). Genital region of the male with a set of 25 short and acuminate setae on the anterior operculum, three short setae on each side proximad of the genital opening and eight setae acuminate on the margin of the posterior operculum (Fig. 11b).

Chelicera with five setae on the hand, setae *bs*, and *es* serrated; rallum with three blades (Fig. 10c), the distal one denticulate on anterior margin; fixed finger with three teeth, movable finger with tooth-like subapical lobe; galea slender with several bifid branches; serrula exterior with 18 blades (Fig. 10b, 10c).

Pedipalps, robust, granulate surface, all setae clavate, dark brown color, with lighter areas in the apical zone of the segments (Fig. 2h); trochanter with a small and rounded dorsal hump (Fig. 10d-10e), ♀ 1.54×(♂, 1.5-1-6×); femur non-enlarged, ♀ 1.9× (♂, 2.04-2.06×); patella with prolateral margin strongly rounded (Fig. 10d-10e), ♀ 1.8× (♂, 2.02-2.03×); chela with prolateral margin rounded (Fig. 10d-10e), chela with pedicel ♀ 2.5× (♂, 2.32-2.34×), hand with pedicel ♀ 1.51× (♂, 1.37-1.39×); chelal fingers a little shorter than the hand with pedicel (Fig. 10f), movable finger without curvature (Fig. 10f), chelal hand lightly granulate, fingers smooth, chelal fingers less dark than the hand (Fig. 2h). Trichobothrium *et* on the fixed finger distad of the midpoint (Fig. 10f), *isb* at the same level of *ib*, *it* at the same level of *ist* (Fig. 10f), *est* close to the same level of *it*, *ist* proximad of *ib* (Fig. 10f); on the movable finger trichobothrium *st* distad of *t*, and forming a group at the base of the movable finger with the trichobothria *sb* and *b* (Fig. 10f); long venom duct, nodus ramosus proximad of trichobothrium *t* (Fig. 10f). Fixed finger with 35 marginal teeth, additionally five retrolateral teeth and six prolateral teeth (Fig. 10f); movable finger with 37 marginal teeth, additionally two prolateral teeth and six retrolateral teeth (Fig. 10f). Venom apparatus well developed in the movable finger and vestigial in the fixed finger (Fig. 10f).

Legs (female, males in brackets): Leg I light brown, femur 2.4× (1.0-1.1×), patella 1.4× (1.1-1.2×), tibia 2.8× (2.6-2.7×), tarsus 2.6× (2.6-3.3×). Leg IV: femur + patella 2.3× (2.5-2.4×), tibia 4.5× (4.2-4.3×), tarsus 3.7× (4.5-5.1×) with a tactile seta, located in the subbasal position of the segment, undivided arolia shorter than smooth claws (Fig. 10g).

MEASUREMENTS (mm). Holotype ♀: body length 3.2; Carapace 0.75/0.63. Pedipalp: trochanter 0.37/0.24, femur 0.59/0.31, patella 0.60/0.33, chela with pedicel: 1.06/0.43, hand with pedicel 0.65/0.43, pedicel length 0.07, movable finger 0.54. Leg I: femur 0.26/0.19, patella 0.31/0.17, tibia 0.32/0.12, tarsus: 0.27/0.09. Leg IV: femur+patella 0.56/0.24, tibia 0.41/0.09, tarsus 0.26/0.07. Paratypes ♂♂: body length 2.4-2.5; Carapace 0.77-0.79/0.63-0.69. Pedipalp: trochanter 0.32-0.33/0.21-0.22, femur 0.57-0.58/0.27-0.29, patella 0.62-0.65/0.31-0.32, chela with pedicel: 1.06-1.1/0.45-0.46, hand with pedicel 0.62-0.63/0.45-0.46, pedicel length 0.07-0.08, movable finger 0.52-0.53. Leg I: femur 0.14-0.15/0.11-0.13, patella 0.32-0.35/0.12-0.13, tibia 0.28-0.29/0.08-0.11, tarsus: 0.25-0.27/0.04-0.05. Leg IV: femur+patella 0.51-0.53/0.21-0.22, tibia 0.48-0.51/0.11-0.12, tarsus 0.31-0.32/0.06-0.07.

ETYMOLOGY. The specific epithet (*foreroa*), is in honor of Esther Forero, Colombian singer-songwriter, for her dedicated work as an ambassador of Colombian music to the world, and her contributions to the culture of the city of Barranquilla and its carnival.

REMARKS. *P. foreroa* differs from the other species of the genus *Parachernes*, by the distribution of the trichobothrium *st* closer to *sb* and *b* than to *t*, forming a group at the base of the movable finger, the distribution of the trichobothrium *est* close to the same level of *it* and *ist* proximad of *ib*; by the shape of the prolateral margin of the chelal hand and the pedipalpal femur 2.04-2.06× and patella 2.02-2.03×. *P. foreroa* resembles *P. adisi* Mahnert, 1979 from Brazil, *P. argentatopunctatus* (Ellingsen, 1910) from Brazil and Guyana, *P. confraternus* (Banks, 1909) from Brazil and *P. rasilis* Muchmore and Alteri, 1974 from USA. It differs from *P. adisi* by the shape of the retrolateral margin of the pedipalpal femur, less enlarged at the base in *P. foreroa*, similarly, by the position of the trichobothrium *ist* proximad of *ib* and close to the level of *esb*, and the shape of the prolateral margin of the hand. It differs from *P. argentatopunctatus* by the distribution of trichobothria *st* forming a group at the base of the movable finger, the patella more globose than in *P. argentatopunctatus*, only tergites IV-VIII with a white zone of equal size. It differs from *P. confraternus* by the shape of the softer patella and the shape of the femur thickened at the base, by the distribution of the trichobothria *st* closer to *sb* and *b* than to *t*, forming a group at the base of the movable finger, the distribution of the trichobothrium *est* close to the same level of *it*, trichobothrium *ist* proximad of *ib* and the shape of the prolateral margin of the chelal hand in *P. foreroa.* Finally, this differs from *P. rasilis* by the presence of light reflecting pigment in areas of the carapace and tergites, the carapace of *P. rasilis* has few granules anterior of mid furrow, nodus ramosus of movable finger very slightly proximad of trichobothria *t*, the movable finger chelal less curved, by the shape of the prolateral margin of the chelal hand and ratios of the pedipalpal femur 2.55× (2.4-2.7×), patella 2.3× (2.15-2.41×).

The specimens of *P. foreroa* were collected by hand, associated with barks of *Rhizophora mangle* L. and *L. racemosa* in fragments of mangrove forest of the Mallorquin marshes, Municipality of Barranquilla, department of Atlántico (Fig. 1a).

DISTRIBUTION. It is only known from the type locality **(**Colombia) (Fig. 14b).

***Parachernes* (*P.*) *melanopygus* Beier, 1959**

Fig. 14b.

MATERIAL EXAMINED. 10 ♀, 11 ♂, Colombia, Córdoba, Montería: Campus of the University of Córdoba, 8°47'25.4"N, 75°51'35.8"W, 16 m asl, August 11, 2013, collected by hand on bark, dry forest. E. Bedoya-Roqueme leg. (LEUC, Ps-029). 4 ♀ (LEUC, Ps-030), 5 ♂ (LEUC, Ps-031), Colombia, Córdoba, Tierralta: TuisTuis: Tutifruti farm, 8°2'2.881" N, 76°5'29.993" W, 175 m asl, December 3, 2014, collected by hand on bark, humid forest, E. Bedoya-Roqueme leg. (LEUC, Ps-030). 12 ♀, 14 ♂, Colombia, Córdoba, San Carlos, 8°44´ 44,6"N; 75°40´46,5"W, 56 m asl, November 13, 2017, collected by hand on bark, dry forest. E. Bedoya-Roqueme leg (LEUC, Ps-031).

DIAGNOSIS. According to the descriptions made by Beier (1959), Mahnert (1979) and the taxonomic key proposed by Mahnert *et al*. (2011), *Parachernes* (*P.*) *melanopygus* Beier 1959, it can be easily differentiated by the granulation of carapace metazone; all the tergites divided (except XI); tergites I-VIII scaled surface, IX indistinctly granulated; each tergite with four setae, tergites IV-XI with marginal setae, the discal and the medial setae absent; setae relatively long and finely denticulate; pedipalps thinned, indistinctly granulated, of dark color, chelal fingers strongly gaping (see Beier, 1959: fig. 22), distribution of trichobothria (see Beier, 1959: fig. 22), femur 2.3-2.6× (0.55-0.66/0.22-0.28 mm), patella 2.0-2.3× (0.56-0.66/0.24-0.33×), hand with pedicel 1.4-1.6× (length 0.58-0.66 mm) and longer than finger (length 0.48-0.56 mm), chela with pedicel 2.4-2.7× longer than broad (length 0.99-1.20 mm); fixed finger with about marginal 26 teeth, movable finger with about 33 teeth; leg IV: femur+patella 2.8-3.0× (0.58-0.70/0.21-0.23×), tibia 3.4-3.9× (0.42-0.50/0.12-0.14×), tarsus 3.9-4.5× (0.31-0.36/0.08-0.09×) longer than deep, tactile seta long. Chelicera with five setae on the hand, setae *bs*, and *es* serrated; rallum with three blades, the distad one denticulate on anterior margin; fixed finger with three teeth, movable finger with tooth-like subapical lobe; galea slender with six bifid branches; serrula exterior with 21 blades, all legs light yellow, indistinctly granulated. Leg I: femur 2.3-24× (2.3-2.4×), patella 2.3-2.5× (2.2-2.3×), tibia 2.8-2.9× (2.5-2.7×), tarsus 2.6-2.7× (2.5-2.6×). Leg IV: femur + patella 2.9-3.1× (2.7-2.9×), tibia 3.5-3.7× (3.2-3.4×), tarsus 3.8-4.4× (4.3-4.5×) with tactile seta long, undivided arolia shorter than smooth claws.

MEASUREMENTS (mm). Females: body length 3.1-3.3; Carapace 0.89-0.91/0.85-0.87. Pedipalp: trochanter 0.37-0.40/ 0.24-0.25, femur 0.71-0.73/0.29-0.31, patella 0.68-0.70/0.32-0.33, chela with pedicel: 1.26-1.28/0.43-0.45, hand with pedicel 0.74-0.75/0.43-0.45, pedicel length 0.08, movable finger 0.60-0.62. Leg I: femur 0.21-0.23/0.16-0.19, patella 0.31-0.33/0.14-0.16, tibia 0.32-0.33/0.11-0.12, tarsus: 0.27-0.30/ 0.08-0.09. Leg IV: femur+patella 0.52-0.54/0.24-0.26, tibia 0.46-0.48/0.13-0.14, tarsus 0.32-033/0.07-0.08. Males: body length: 2.0-2.1; Carapace 0.60-0.61/0.60-0.62. Pedipalp: trochanter 0.27-0.30/0.17-0.19, femur 0.48-0.50/0.20-0.21, patella 0.49-0.50/0.25-0.27, chela with pedicel: 0.89-0.91/ 0.36-0.38, hand with pedicel 0.48-0.50/0.36-0.38, pedicel length 0.07-0.08, movable finger 0.45-0.47. Leg I: trochanter 0.14-0.15/0.10-0.11, femur 0.16-0.18/0.11-0.12, patella 0.19-0.20/0.11-0.12, tibia 0.18-0.19/0.08-0.10, tarsus: 0.19-0.21/ 0.05-0.06. Leg IV: trochanter 0.30-0.31/0.11-0.12, femur +patella 0.43-0.45/0.15-0.18, tibia 0.35-0.37/0.10-0.12, tarsus 0.25-0.27/0.05-0.07.

REMARKS. The specimens of *P.* (*P.*) *melanopygus* were collected by hand on bark in different ecosystems, such as, dry forest, humid forest and savannah, from 2m to 178 m asl, also in some populations were found in nests of the pseudoescorpion species *P. nidificator*.

DISTRIBUTION. Argentina, Brazil, Colombia, Ecuador, Guatemala, Mexico (Harvey, 2013; Bedoya *et al*., 2014).

***Parachernes* (*Parachernes*) *plumosus* (With, 1908)**

Fig. 2i, 14b.

MATERIAL EXAMINED. 5 ♀, Colombia, Sucre, Colosó: Estación Primates, 9°31´45.2" N, 75°21´28.1" W, 259 m asl, collected by hand on bark, dry forest. R. Torres, J. Rios leg. (LEUC, Ps-C011).

DESCRIPTION. According to the descriptions made by With (1908), Beier (1932), Mahnert (1979) and the taxonomic key proposed by Mahnert *et al*. (2011), *Parachernes* (*P.*) *plumosus* (With, 1908) can be easily differentiated by the granulation of carapace metazone, with rounded or pointed granules and provided with short and clearly claviform setae; tergites with the exception of the eleventh divided longitudinally by a broad band; setae on the pedipalpal hand are more or less distinctly claviform, but later obtuse or dentate, the basal portion has no teeth, while the distal portion has approximately ten short teeth and, therefore, has a somewhat appearance plumose; setae on chelal hand distinctly curved, finely dentate, but not clavate; pedipalpal femur 2.3× longer than broad (length 0.49 mm), patella 2.3-2.4× (length 0.52 mm), hand with pedicel 1.4× longer than broad and 1.1-1.4 × longer than finger; chela with pedicel 2.3-2.5× longer than broad; spermatheca consisting of two long curved tubes as described by Mahnert (1979, see fig. 139). All the tergites divided (except XI), tergites strongly granulated; tergites IV-XI with 2 medial setae and one lateral setae, setae of different aspects, in the first tergites I-IV with normal or acuminate setae and tergites V-XI with serrated setae, pleural membrane longitudinally striated, region genital of female, with a rounded central set of approximately 12 setae on the anterior operculum and eight to nine submarginal setae on the posterior operculum; spermathecae consisting of two long tubes curved and without dilatation., chelicera with five setae on the hand, setae *bs*, and *es* serrated; rallum with three blades, the distad one denticulate on anterior margin; fixed finger with three teeth, movable finger with tooth-like subapical lobe; galea of ♀ with six apical branches, galea of the ♂ simple, short cone shaped; serrula exterior with 19-23 blades (♂♂, 21 blades). Pedipalps, ♀, ♂, strongly granulated, except the chelal fingers, that are almost smooth, setae on the pedipalpal hand are more or less distinctly claviform, but posteriorly obtuse or dentate, the basal portion has no teeth, while the distal portion has approximately ten short teeth and, therefore, has a somewhat plumose appearance; setae on chelal hand distinctly curved, finely dentate, but not clavate; trichobothria on the fixed finger of the chela *isb*, *ib*, *it, ist* grouped close to the base of the finger, trichobothria *it* proximad of *est* and close to the level of *isb*, trichobothrium *ib* proximad of *ist* and close to the level of *esb*; trichobothria on the movable finger, *st* closer to *t* at the same level as *b*; fixed chelal finger with approximately ♀ 10-15 (♂, 15-22) teeth, two prolateral accessory teeth and a retrolateral accessory tooth, movable chelal finger with approximately ♀ 12-15 (♂, 18-22) teeth, two prolateral accessory teeth and two retrolateral accessory teeth. Venom apparatus well developed in the movable finger. Legs light yellow, setae

short moderately or slightly claviform or obtuse, the ventral setae are acuminate and more or less simple. Leg I (females, males in brackets): trochanter 1.16-1.18× (1.1-1.2×), femur 1.6-1.7× (1.4-1.5×), patella 2.0-2.1× (1.4-1.6×), tibia 2.8-2.9× (2.9-3.1×), tarsus 3.1-3.2× (3.1-3.1×). Leg IV (females, males in brackets): trochanter 1.6-1.7× (1.4-1.5×), femur+patella 3.0-3.1× (2.5-2.6×), tibia 2.6-2.7× (2.8-2.9×), tarsus 3.2-3.3× (3.5-3.6×) with a long seta close to the apical region

MEASUREMENTS (mm). Females: length: 2.1-2.3; Carapace 0.73-0.74/0.64-0.65. Pedipalp: trochanter 0.27-0.28/0.18-0.19, femur 0.55-0.57/0.18-0.19, patella 0.60-0.61/0.22-0.23, chela with pedicel: 0.98-1.0/0.44-0.45, hand with pedicel 0.59-0.61/0.43-0.45, pedicel length 0.08, movable finger 0.53-0.54. Leg I: trochanter 0.13-0.15/0.11-0.13, femur 0.16-0.17/0.10-0.11, patella 0.23-0.25/0.10-0.11, tibia 0.22-0.23/0.07-0.08, tarsus: 0.19-0.21/0.06-0.07. Leg IV: trochanter 0.20-0.22/0.12-0.13, femur+patella 0.45-0.47/0.14-0.15, tibia 0.26-0.28/0.10-0.11, tarsus 0.23-0.24/0.07-0.08.

Males: length: 1.7-1.8; Carapace 0.70-0.72/0.60-0.61. Pedipalp: trochanter 0.30-0.31/0.16-0.18, femur 0.50-0.51/0.21-0.23, patella 0.54-0.56/0.23-0.25, chela with pedicel: 0.91-0.93/0.43-0.45, hand with pedicel 0.58-0.60/0.43-0.45, pedicel length 0.07-0.08, movable finger 0.39-0.40. Leg I: trochanter 0.12-0.13/0.10-0.11, femur 0.13-0.14/0.11-0.12, patella 0.18-0.19/0.11-0.12, tibia 0.25-0.27/0.08-0.09, tarsus: 0.19-0.21/0.05-0.06. Leg IV: trochanter 0.17-0.18/0.11-0.12, femur+patella 0.40-0.41/0.16-0.18, tibia 0.29-0.31/0.10-0.12, tarsus 0.21-0.23/0.05-0.07.

REMARKS. The specimens of *P.* (*P.*) *plumosus* were hand collected, bark associated in dry forest, about 259 m asl, from the Colosó locality, department of Sucre Caribbean Colombian.

DISTRIBUTION. Brazil, Colombia, Ecuador, Venezuela.

***Sphenochernes attazi* sp. n.**

Fig. 2j, 2k, 3d, 12, 13, 14a.

MATERIAL EXAMINED. Holotype 1 ♀. Colombia, Montería: Patio Bonito-Santa Isabel 8°36´42" N, 75°44´32" W, 192 m asl, December 2, 2013, collected by hand on detritus of ant *Atta colombica* Guérin-Méneville, 1844, dry forest, E. Bedoya-Roqueme leg. (LEUC, Ps-034). Paratypes. 13 ♂, 10 ♀, same data as holotype.

DIAGNOSIS. *Sphenochernes attazi* **sp. n.**, is characterized by the position of trichobothrium *it* on the fixed finger, being proximad of *isb* and distad of *et*, *est* proximad of *esb* and *eb*, and distad of middle, *isb* distad of *ib*, *ist* at the same level of *isb*; the pedipalpal femur ♀ ratio, 2.3-2.4×(♂, 1.8-1.9×) and patella ♀, 2.1-2.3×(♂, 1.9-2.1×); by the number of teeth present in the chelal fixed finger, 40-42, and three prolateral accessory teeth and four retrolateral accessory teeth, movable finger with 30-35 teeth, three prolateral accessory teeth and four retrolateral accessory teeth; also by the presence of two lateral and two discal setae on tergites IV-VIII of the abdomen.

DESCRIPTION. Adults (♀, ♂), carapace, pedipalps and tergites reddish brown, all legs light yellow (Fig. 2j-2k). Carapace slightly longer than broad ♀, 1.1× (♂, 1.2×), smooth surface, moderately granulated, short vestitular setae and strongly clavate, without eye-spots, with two wide and deep finely granulated transverse furrows, one against the other are curved so the mesozone is narrowed in the middle, the subbasal transverse furrow is almost exactly in the middle between the anterior furrow and the posterior margin (Fig. 12a); mesozone with circular granules widely spaced from each other (Fig. 3d), anterior margin with six setae (♀, ♂) and posterior with 6-8 (♀), 8-10 (♂) setae (Fig. 12a). Tergites and sternites completely divided (except XI), granulated surface, short setae and strongly clavate. Chaetotaxy of tergites holotype ♀: I-XII: 16: 16: 16: 16: 12: 12: 12: 12: 12: 12: 4: 2. Chaetotaxy of sternites holotype ♀: II-XII: 21: (3)12(3): (1)10(1): 12: 12: 12: 10: 8: 8: 8[2TS]: 2, additionally, tergites IV-VIII with two lateral and two discal setae. Chaetotaxy of tergites paratype ♀♀: I-XII: 12-16: 12-16: 12-16: 12-16: 10-12: 10-12: 10-12: 10-12: 10-12: 10-12: 4: 2. Chaetotaxy of sternites paratype ♀♀: II-XII: 21: (3)12(3): (1)10(1): 12-14: 12-14: 12-14: 10-12: 8-10: 8-10: 8-10 [2TS]: 2. Chaetotaxy of tergites paratype ♂♂: tergites I-XII: 14-16: 14-16: 14-16: 14-16: 10-12: 10-12: 10-12: 10-12: 10-12: 10-12: 4: 2; additionally, tergites IV-VIII with two lateral and two discal setae. Chaetotaxy of sternites paratypes ♂♂: II-XII: 18: (3)3+3,10(3): (1)10(1): 10-12: 12-14: 12-14: 10-12: 10-12: 8-10: 8-10[2TS]: 2; additionally, tergites of IV-VIII with two lateral and two discal setae. Genital region of female is chiefly characterized by the spermatheca, ending in a small but well-marked cribiform plate (Fig. 13b). Genital region of male with a set of 18 setae on anterior operculum and 11 setae on posterior operculum (Fig. 13a). Pleural membranes longitudinal, irregularly striate.

Chelicera with five setae on the hand, all the setae acuminate (except *sbs* serrated); rallum with three blades (Fig. 12c), the distad one denticulate; fixed finger with four teeth, movable finger with tooth-like subapical lobe; galea slender bifid and a small branch proximad of the apex; serrula exterior with 18 blades (Fig. 12b, 12c).

Pedipalp robust, reddish brown, granulated surface, short setae and strongly clavate, trochanter (♀) 1.59-1.45×, (♂) 1.38-1.45 ×; femur (♀) 2.2-2.5×, (♂) 1.8-1.95×; patella (♀) 2.0-2.1×, (♂) 1.9-2.0×; Chela with pedicel (♀) 3.1-2.9×, (♂) 2.7-2.8×; Hand with pedicel (♀) 1.5-1.6×, (♂) 1.5-1.8×; chelal hand strongly granulate, fingers granulate. Trichobothrium *it* on the fixed finger, being proximad of *isb* and distad of *et* (Fig. 12f), *est* proximad of *esb* and *eb*, and distad of middle, and two glandular pores close to *est* and *eb* (Fig. 12f), *isb* distad of *ib* (Fig. 12f), *ist* at the same level of *isb* (Fig. 12f); on movable finger only *t* proximad of middle, *st* closer to *t* than to *sb*, trichobothria *sb* and *b* forming a group at the base of the movable chelal finger, nodus ramosus between *t* and *st* (Fig. 12f). Fixed finger (♀, ♂) with 40-42 marginal teeth, five prolateral accessory teeth and three retrolateral accessory teeth (Fig. 12f). Movable finger (♀, ♂) with 30-35 marginal teeth, three prolateral accessory teeth and four retrolateral accessory teeth (Fig. 12f). Venom apparatus well developed in the movable finger and vestigial in the fixed finger (Fig. 12f). With evident sexual dimorphism in the prolateral margin of the pedipalpal hand, being more robust and globose in ♂, while in ♀ it is more elongated (Fig. 12d, 12e).

Legs (females, males in brackets) robust and acuminate, light yellow in color, surface with some granulations: Leg I femur 1.2-1.4× (1.2-1.5×), patella 1.7-1.8× (1.5-1.7×), tibia 3.8-4.2× (2.4-2.6×), tarsus 5.4-6.5× (4.6-5.5×). Leg IV femur+patella 3.8-4.1× (3.1-3.2×), tibia 4.1-5.0× (3.1-3.6×), tarsus 6.1-6.8× (4.5-4.8×) with subterminal tactile setae curved, short smooth, undivided arolia shorter than smooth claws (Fig. 12g).

MEASUREMENTS (mm). Holotype ♀: body length 2.6; Carapace 0.75/0.68. Pedipalp: trochanter 0.35/0.22, femur 0.55/0.22, patella 0.57/0.26, chela with pedicel: 1.015/0.34, hand with pedicel 0.56/0.34, pedicel length 0,07, movable finger 0.44. Leg I: femur 0.14/0.10, patella 0.17/0.10, tibia 0.30/0.08, tarsus: 0.26/0.04. Leg IV: femur+patella 0.57/0.14, tibia 0.35/0.07, tarsus 0.34/0.05. Paratypes ♀♀: body length 2.6-2.8; Carapace 0.75-0.76/0.68-0,69. Pedipalp: trochanter 0.32-0.35/0.20-0.22, femur 0.53-0.55/0.22-0.24, patella 0.55-0.57/0.26-0.27, chela with pedicel: 1.01-1.05/0.34-0.36, hand with pedicel 0.56-0.57/0.34-0.36, pedicel length 0,07, movable finger 0.44-0.45. Leg I: femur 0.14-0.15/0.10-0.12, patella 0.17-0.19/0.10-0.11, tibia 0.30-0.31/0.07-0.08, tarsus: 0.26-0.27/0.04-0.05. Leg IV: femur+patella 0.57-0.58/0.14-0.15, tibia 0.35-0.36/0.07-0.09, tarsus 0.34-0.36/0.05-0.06. Paratypes ♂♂: body length 1.6-1.9; Carapace 0.53-0.56/0.46-0,48. Pedipalp: trochanter 0.25-0.29/0.18-0.20, femur 0.39-0.40/0.20-0.22, patella 0.45-0.48/0.23-0.25, chela with pedicel: 0.82-0.83/0.29-0.30, hand with pedicel 0.44-0.53/0.29-0.30, pedicel length 0,07, movable finger 0.41-0.42. Leg I: femur 0.15-0.17/0.10-0.12, patella 0.17-0.18/0.10-0.12, tibia 0.16-0.17/0.06-0.07, tarsus: 0.22-0.23/0.04-0.05. Leg IV: femur+patella 0.45-0.47/0.14-0.15, tibia 0.25-0.27/0.07-0.09, tarsus 0.24-0.27/0.05-0.06.

ETYMOLOGY. The specific epithet (*attazi*) is a Latinized term of the generic name *Atta* Fabricius, 1805 (group of leaf cutter ants), since the specimens were collected in detritus from the ant *Atta columbica* (Guérin-Méneville, 1844).

REMARKS. the genus *Sphenochernes* Turk, 1953, was initially created for the species *S. schulzi* by Turk, 1953; later several additions were made: *Chelifer* (*Tullgrenia*) *bruchi* Mello-Leitão, 1925 and *Syndeipnochernes camponoti* Beier, 1970b, both were synonymized by subsequent designation of Mahnert (1985); currently the genus is represented by three species *S. schulzi* Turk, 1953, *S. camponoti* (Beier, 1970) and *S. bruchi* (Mello-Leitão, 1925), distributed in Argentina and Brazil. *Sphenochernes attazi* **sp. n.**, differs from the other species of the genus, by the position of trichobothrium *it* on the fixed finger, being distad of *isb* and proximad of *et*, *est* distinctly distad of *esb* and *eb*, and proximad of middle, *ist* at the same level of *isb*; the pedipalpal femur (♂) ratio 1.8-1.9×, (♀) 2.3-2.4× and patella (♂) 1.9-2.1×, (♀) 2.1-2.3×.

In the nests of ants occur an extraordinary diversity of arthropods, which involves symbiosis and parasitism (Cole *et al*., 1994; Bedoya-Roqueme *et al*., 2015); in this sense, several species of pseudoscorpions are considered myrmecophiles; however, Cole *et al*. (1994), considers that this relationship is not well clarified. *Sphenochernes attazi* **sp. n.**, was found in mounds of detritus of *Atta colombica* (Guérin-Méneville, 1844); it seems to be typically myrmecophile and, apparently, lives associated in numerous populations and distributed from the surface to the middle part of the mounds. The genus is now represented by four species, which have been collected associated with ant nests of *Acromyrmex lundi*, *Camponotus rufipes* and *Atta columbica* (Turk, 1953; Beier, 1970) (Fig. 1c). In this sense, its presence can be associated with the supply of food, because it shares, space and resource with other populations of arthropods such as, myriapods, larvae of coleoptera, collembola and similarly other species of pseudoscorpions similarly. This genus can be considered as exclusive associated with ant nests (Fig. 1c).

DISTRIBUTION. Only known from the type locality (Colombia) (Fig. 14a).

Discussion

The Chernetidae family is found in all terrestrial ecosystems and marine environments of the world, occurring under the tree barks, in leaf litter, in caves, as well as in a variety of other habitats (Harvey, 1992, 2013). Colombia is one of the countries with the highest expression of biological diversity and is considered within the group of mega-diverse countries (Rangel-Ch., 2006; 2015; Andrade-C., 2011); currently, efforts have been made to know the pseudoscorpions fauna in the different ecosystems of the country, however, the pseudoscorpions fauna in the Caribbean region of Colombia has been scarcely studied, and only some isolated records are known (Banks, 1909; Muchmore, 1982; Ceballos & Flórez, 2007; Bedoya-Roqueme *et al*., 2014, 2015, 2016, 2017a; Bedoya-Roqueme, 2015; Bedoya-Roqueme & Quirós Rodríguez, 2018, Quirós-Rodríguez *et al*., 2015; Torres & Bedoya-Roqueme, 2018; Bedoya-Roqueme & Quirós-Rodríguez, 2019; Villarreal *et al*., 2019).

In Colombia, the family Chernetidae is represented (including the addition of this study) by 27 species, which corresponds to 48.2% of the species reported for the country, being the most diverse family of pseudoscorpiones with a wide distribution in Colombia (Harvey, 2013; Torres & Bedoya-Roqueme, 2018); the genus *Parachernes* Chamberlin 1931 (with nine species) corresponding to 33.3% and *Americhernes* Muchmore 1976 (with five species) corresponding to 18.5%, are those with the highest species richness, followed by the genus *Pseudopilanus* Beier 1957 and *Gomphochernes* Beier 1932 (with two species each one) all together represents 74% of the known species from Colombia, the other genera are represented by at least one species and is equivalent to 3.7% of the species reported for Colombia (Table I). However, for the family Chernetidae only the species *Americhernes reductus* Muchmore, 1976, *Americhernes* sp. 2, *Antillochernes bullerenguesis* Bedoya-Roqueme and Quirós-Rodríguez, 2018, *Dasychernes inquilinus* Chamberlin, 1929, *Epactiochernes insularum* Muchmore, 1974, *Parachernes* (*P.*) *melanopygus* Beier, 1959, *Parachernes* aff. *setosus* Beier, 1948 and *Pseudopilanus* sp. 2 have been previously registered in the Colombian Caribbean region (Bedoya-Roqueme & Quirós-Rodríguez, 2018; Torres & Bedoya-Roqueme, 2018). To all them, here are added *Gomphochernes volkeri* **sp. n.**, *Parachernes* (*P.*) *adelaidae* **sp. n.**, *Parachernes* (*P.*) *monteriacittatus* **sp. n.**, *Parachernes* (*P.*) *foreroa* **sp. n.**, *Sphenochernes attazi* **sp. n.**, *Americhernes incertus* Mahnert 1979, *Americhernes bethaniae* Mahnert 1979 and *Parachernes* (*P.*) *plumosus* (With, 1908) (Fig. 14A-14B).

The genus *Parachernes* is well distributed in America and areas of the Pacific (Muchmore & Alteri, 1969, 1974; Weygoldt, 1969; Mahnert & Adis, 2002; Harvey, 2009, 2013; Mahnert *et al*., 2011; Mahnert, 2014; Judson, 2016). Currently, only the species *P. (P.) litoralis* Muchmore & Alteri, 1969, *P. (P.) pulchellus* (Banks, 1908), *P. (P.) nigrimanus* (Banks, 1902), *P. (P.) galapagensis* Beier, 1977 and *P. (P.) setosus* Beier, 1948 are present in littoral zones and mangrove forests, mostly associated with litter and the forest canopy (Weygoldt, 1969; Harvey, 2009; Mahnert, 2014; Judson, 2016; Bedoya-Roqueme *et al*., 2017). To them are now added *P.* (*P.*) *adelaidae* **sp. n.** and *P.* (*P.*) *foreroa* **sp. n.**, which were found

Table I. Taxonomic list of species of the Chernetidae family and distribution patterns in Colombia. **DEP**: Department abbreviations: ama = Amazonas; atl= Atlántico; cor = Córdoba; cun = Cundinamarca; hla = Huila; mag = Magdalena; = Sucre; vc = Valle del Cauca. **REG**: Regions: and = Andean; car = Caribbean; pac = Pacific; amz = Amazonia.

Genus/Species	DEP	REG	Habitat	References
Americhernes aff. *bethaniae* Mahnert, 1979	su	car	Tree bark	This study
Americhernes incertus Mahnert, 1979	cor	car	Tree bark	This study
Americhernes reductus Muchmore, 1976	cor	car	Tree bark	[2] [10]
Americhernes sp. 1	hla	and	Tree bark	[10]
Americhernes sp. 2	su	car	Tree bark	[3] [10]
Antillochernes bullerenguesis Bedoya-Roqueme & Quirós-Rodríguez, 2018	cor	car	Tree bark	[4]
Cordylochernes scorpioides (Linnaeus, 1758)	cau	and	Phoretic harlequin beetle	[6] [10]
Dasychernes inquilinus Chamberlin, 1929	mag	car	Beehives	[6] [10]
Epactiochernes insularum Muchmore, 1974	cor	car	Remains of coral	[2] [10]
Gomphochernes communis (Balzan, 1888)				[6] [10]
Gomphochernes volkeri **sp. n.**	cor	car	Tree bark	This study
Incachernes brevipilosus (Ellingsen, 1910)		central		[6] [10]
Lustrochernes argentinus (Thorell, 1877)	vc	pac		[6] [10]
Pachychernes subrobustus (Balzan, 1892)				[7] [10]
Parachernes (*Parachernes*) *adelaidae* **sp. n.**	cor	car	Tree bark	This study
Parachernes (*Parachernes*) aff. *setosus* Beier, 1959	cor	car	Tree bark	[2] [10]
Parachernes (*Parachernes*) *albomaculatus* (Balzan, 1899)				[6] [10]
Parachernes (*Parachernes*) *monteriacittatus* **sp. n.**	cor	car	Tree bark	This study
Parachernes (*Parachernes*) *crassimanus* (Balzan, 1887)				[6] [10]
Parachernes (*Parachernes*) *foreroa* **sp. n.**	atl	car	Tree bark	This study
Parachernes (*Parachernes*) *pallidus* Beier, 1959	cun	and		[9] [6] [10]
Parachernes (*Parachernes*) *plumosus* (With, 1908)	su	car	Tree bark	[5] [8] This study
Parachernes melanopygus Beier, 1959	cor, hla, su	car, and	Tree bark	[1] [10]
Parazaona ellingsenii (With, 1908)	vc	and		[6] [10]
Pseudopilanus sp.1	vc	and		[6] [10]
Pseudopilanus sp.2	su	car	Leaf litter	[3] [10]
Sphenochernes attazi **sp. n.**	cor	car	Ant nests	This study

References: [1] Bedoya-Roqueme *et al*., 2014, [2] Bedoya-Roqueme *et al*., 2017a, [3] Bedoya-Roqueme *et al*., 2017b, [4] Bedoya-Roqueme & Quirós-Rodríguez, 2018, [5] Beier, 1932, [6] Ceballos & Flórez, 2007, [7] Harvey, 2013, [8] Mahnert, 1979, [9] Muchmore, 1993, [10] Torres & Bedoya-Roqueme, 2018.

associated with the bark of mangrove trees; this behavior can be attributed to migration phenomena in flood zones (Adis *et al*., 1988; Adis & Mahnert, 1990; Moráis & Adis, 1997; Junk, 2002; Aguiar & Bührnheim, 2003, 2011; Aguiar *et al.*, 2006; Battirola *et al*., 2017). Similarly, *P*. (*P*.) *monteriacittatus* **sp. n.**, was collected associated with tree bark in areas of urban environments, which suggests that this species may be using the phoresis activity as dispersion mechanism, behavior reported in many other species of the family Chernetidae (Muchmore, 1971; Aguiar & Bührnheim, 1998; 2011; Poinar *et al*., 1998). The genus *Americhernes* is widely distributed in America, some regions of Australia, Europe [United Kingdom, introduced (Judson, 1997)] and Oceania (Harvey, 2013); in America is currently represented by 19 species and in Colombia it is the second genus with the richest species, occurring under the bark of trees, in leaf litter, in caves, as well as a variety of other habitats (Harvey, 2013). With the results given herein, and those in recent published articles a total of 58 species have been described and reported for Colombia; herein are described as new species *Gomphochernes volkeri* **sp. n.**, *Parachernes* (*P.*) *adelaidae* **sp. n.**, *Parachernes* (*P.*) *monteriacittatus* **sp. n.**, *Parachernes* (*P.*) *foreroa* **sp. n.**, *Sphenochernes attazi* **sp. n.** The species *Americhernes incertus* Mahnert 1979, *Americhernes bethaniae* Mahnert 1979 and *Parachernes* (*Parachernes*) *plumosus* (With, 1908) are reported for the first time for Colombia.

Identification key to the pseudoscorpion species of the family Chernetidae reported from Colombia

An updating of the original taxonomic keys made up by Mahnert & Adis (2002), Mahnert *et al*. (2011) and Bedoya-Roqueme *et al*. (2017).

1. Carapace smooth or only indistinctly granulate; tactile seta of tarsus leg IV close to base of tarsus; vestitular setae long, acute or slightly dentate 2
− Carapace clearly granulate laterally; tactile seta of tarsus, if present, close to middle or in distal part of tarsus; vestitular setae shorter, dentate and/or clavate 8
2. Distance between tip of fixed chelal finger and trichobothrium *it* distinctly longer than that between *ist* and *isb* (*Americhernes*) 3
− Distance between tip of fixed chelal finger and trichobothrium *it* equal to or shorter than distance between trichobothria *ist* and *isb* 5
3. Pedipalps moderately robust; femur (♂) 2.3× (0.43-0.50/0.18-0.21 mm), (♀) 2.3× (0.45-0.49/0.18-0.21 mm); patella (♂) 1.8× (0.37-0.43/0.21-0.23 mm), (♀) 2.1× (0.39-0.41/0.19-0.21 mm); hand without pedicel (♂) 1.8× (0.36-0.44/0.19-0.25), (♀) 1.9× (0.35-0.48/0.18-0.24 mm); chelal finger (♂) 0.29-0.31 mm; (♀) 0.28-0.32 mm .... *Americhernes reductus* Muchmore
− Pedipalps robust; femur 1.9-2.2 × longer than broad, patella 1.8-2.0 × 4
4. Small species; femur 1.9-2.2×, patella1.8-2.1×; number of trichobothria in pedipalps usually reduced..... .....*Americhernes incertus* Mahnert
− Large species; femur 2.2-2.3×; patella 1.9-2.0×; number of trichobothria on the pedipalp normal ....*Americhernes bethaniae* Mahnert
5. Tarsal claws of walking legs smooth, without accessory ventral tooth 6
− Tarsal claws of walking legs with obvious ventral tooth (*Gomphochernes*) 7
6. Pedipalpal patella of the male with a (more or less) conspicuous dorsomedial protuberance; large species; chelal finger of male distinctly gaping; pedipalpal femur length

of male 1.24-1.72 mm; tibia of leg IV 5.0× longer than deep..... *Cordylochernes scorpioides* (Linnaeus)

− Pedipalpal patella of the male without a protuberance; smaller species, pedipalpal femur length 0.95-1.18 mm; patella length 0.94-1.27 mm; tibia of leg IV under 5.0× longer than deep.....*Lustrochernes argentinus* (Thorell)

7. Length of pedipalpal femur 0.69 mm, patella 0.70 mm .....*Gomphochernes communis* (Balzan)

− Length of pedipalpal femur 0.55-0.56 mm, patella 0.54-0.56 mm .....*Gomphochernes volkeri* **sp. n.**

8. Cheliceral rallum with four blades; spermatheca microtubes shape, difficult to observe; pleural membrane strongly sub-papilionate; pedipalp: trochanter surface granulated and with two protuberances (♂) 1.21×, (♀) 1.4× (♂ 0.23/0.19, (♀) 0.24/0.17); moderately granulated femur, setae that vary in size, some being sub-linked; more robust in the ♂ 2.75×, (♀) 3× (♂ 0.44/0.16 mm, (♀) 0.45/0.15 mm); patella with several silks sub-clavate (♂) 1.9×, (♀) 2.1× (♂, 0.4/0.21 mm, (♀) 0.42/0.20 mm)..... ..... *Epactiochernes insularum* Muchmore

− Cheliceral rallum with three blades..... 9

9. Tarsus of leg IV with a tactile seta that is distinctly longer than the depth of tarsus..... 11

− Tarsus of leg IV without a long tactile seta..... 10

10. Chelal hand on medial side with elongate, partly spine-like setae; chelal fingers not gaping, accessory teeth lacking .....*Pseudopilanus*
(two morphotypes present in Colombia, are excluded by their taxonomic status).

− Chelal hand without elongate setae; chelal fingers apparently not gaping, accessory teeth present; carapace without eyes or eye-spots; the pedipalpal femur (♂) ratio 1.8-1.9×, (♀) 2.3-2.4× and patella (♂) 1.9-2.1×, (♀) 2.1-2.3× .....*Sphenochernes attazi* **sp. n.**

11. Four paraxial trichobothria on fixed chelal finger grouped in proximal half..... 12

− Four paraxial trichobothria on fixed chelal finger distributed over length of finger 21

12. Tactile seta on tarsus IV distad of middle; hand of ♂ normal shape (*Parachernes*)..... 13

− Tactile seta of tarsus IV proximad of middle; hand of ♂ with concave medial face; pedipalpal femur 2.1-2.3× (length 0.75-0.78 mm), patella 2.1-2.2× (length 0.79-0.87 mm); chela with pedicel 2.7-2.9× longer than broad .... *Pachychernes subrobustus* (Balzan)

13. Chelal fingers strongly gaping..... 14

− Chelal fingers not gaping..... 17

14. Pedipalpal femur 2.3-2.6×, patella 2.0-2.3×, hand with pedicel 1.4-1.6× 15

− Pedipalpal femur 1.9-2.1×, patella 2.0-2.4×, hand with pedicel 1.6-2.4× 16

15. Pedipalpal femur 2.4× (0.57/0.24 mm), patella 2.3× (0.61/0.27 mm), hand with pedicel 1.6× (0.57/0.35 mm) longer than broad and as long as fingers (length 0.45 mm), chela with pedicel 3.1× longer than broad (length 1.08 mm); fixed finger with about marginal 41 teeth, movable finger with about 47 teeth; leg IV: femur+patella 2.5× (0.49/0.20), tibia 3.6× (0.41/0.11), tarsus 4.0× (0.31/0.08), tactile seta long .... *Parachernes* (*Parachernes*) *crassimanus* (Balzan)

− Pedipalpal femur 2.3-2.6× (0.55-0.66/0.22-0.28 mm), patella 2.0-2.3× (0.56-0.66/0.24-0.33 mm), hand with pedicel l.4-1.6× (length 0.58-0.66 mm) and longer than finger (length 0.48-0.56 mm), chela with pedicel 2.4-2.7× longer than broad (length 0.99-1.20 mm); fixed finger with about 26 marginal teeth, movable finger with about 33 teeth; leg IV: femur+patella 2.8-3.0× (0.58-0.70/0.21-0.23), tibia 3.4-3.9× (0.42-0.50/0.12-0.14), tarsus 3.9-4.5× (0.31-0.36/0.08-0.09) longer than deep, tactile seta long ..... *Parachernes* (*Parachernes*) *melanopygus* Beier

16. Femur less robust and more elongated at the base, (♀) 2.16-2.33× (♂♂, more robust and broader in the base 1.9-2.06×); patella ♀ 2.01-2.07× (♂♂, 2.0-2.3×); hand with pedicel ♀ 2.42 (♂♂, 2.1×)..... ..... *Parachernes* (*Parachernes*) *adelaidae* **sp. n.**

− Femur more robust and broad at the base, (♀) 1.9×; patella (♀) 2.4× (0.62/0.28 mm); pedicel (♀) 1.6× (0.66/0.42 mm); pedipalp fingers (0.63/0.5 mm), strongly gaping and clearer than the hand, being, shorter than the hand with pedicel .... *Parachernes* (*Parachernes*) aff. *setosus* Beier

17. Setae on chelal hand straight, dentate and clavate 18

− Setae on chelal hand distinctly curved, finely dentate, but not clavate; pedipalpal femur 2.3× longer than broad (length 0.49 mm), patella 2.3-2.4× (length 0.52 mm), hand with pedicel 1.4× longer than broad and 1.1-1.4× longer than finger; chela with pedicel 2.3-2.5× longer than broad ..... *Parachernes* (*Parachernes) plumosus* (With)

18. Carapace significantly broader than long..... 19

− Carapace longer than broad..... 20

19. Pedipalpal femur 0.63-0.74/0.25-0.28 mm (0.90 /0.33 mm), patella 0.60-0.73/0.28-0.33 mm (0.90/0.40 mm), hand with pedicel 0.71-0.75/ 0.43-0.48 mm, movable finger. 0.50-0.52 mm (0.57 mm)..... .....*Parachernes* (*Parachernes*) *albomaculatus* (Balzan)

− Pedipalpal femur 0.70/0.23 mm, patella 0.63/0.27 mm, hand with pedicel 0.57/0.42 mm, movable finger 0.54 mm .....*Parachernes* (*Parachernes*) *pallidus* Beier

20. Trichobothrium *st* on the movable finger equidistant between trichobothrium *t* and *sb*; trichobothrium *est* at the same level as *it*, trichobothrium *ist* distad of *est* and proximad of *esb*; ratio of the pedipalpal femur ♀ 2.6× (♂, 2.83-3.42) and patella ♀ 1.93× (♂, 2.0-2.4)..... ..... *Parachernes* (*Parachernes*) *monteriacittatus* **sp. n.**

− Trichobothrium *st* closer to *sb* and *b* than to t, forming a group at the base of the chelal movable finger, trichobothrium *est* close to the same level of *it*, trichobothrium *ist* proximad of *ib*; the ratio of the femur ♀ 1.9× (♂, 2.04-2.06×) and patella ♀ 1.8× (♂, 2.02-2.03×) ....*Parachernes* (*Parachernes*) *foreroa* **sp. n.**

21. Tactile seta on tarsus IV present, distad of middle of article; intersegmental membrane nearly smooth, finely striate; trichobothrium *ist* located slightly distad of *est*, trichobothrium *st* located approximately in the middle between *sb* and *t*; pedipalpal femur 1.012/ 0.335 mm, patella 0.989/0.375 mm; hand with pedicel 0.989/0.529 mm, movable finger 0.736 mm..... .....*Parazaona ellingsenii* (With)

− Tactile seta on tarsus IV absent 22

22. Carapace garypoid in shape, two strongly developed transverse furrows; pedipalpal trochanter 1.7-1.8× as long as broad; femur 2.7-2.9× as long as broad, slenderest in ♂; patella 2.5-2.8× as long as broad, slenderest in ♂; chela with pedicel 3.3-3.7× as long as broad, also slenderest in ♂; hand slightly broader than deep but almost cylindrical; fingers 1.3-1.6× as long as hand, more elongate in ♂ .....*Dasychernes inquilinus* Chamberlin

– Carapace almost as long as broad, anterior face rounded; first transverse furrow proximad of the middle, clear and straight, the second scarcely visible; trichobothrium *it* not further from the tip of the finger than the distance of *ist* and *isb*; trichobothrium *st* closer to *t* than to *sb*; pedipalpal femur 0.50/0.23 mm, patella 0.50/0.26, hand with pedicel 0.47/0.33, movable finger 0,41 mm .... *Incachernes brevipilosus* (Ellingsen)

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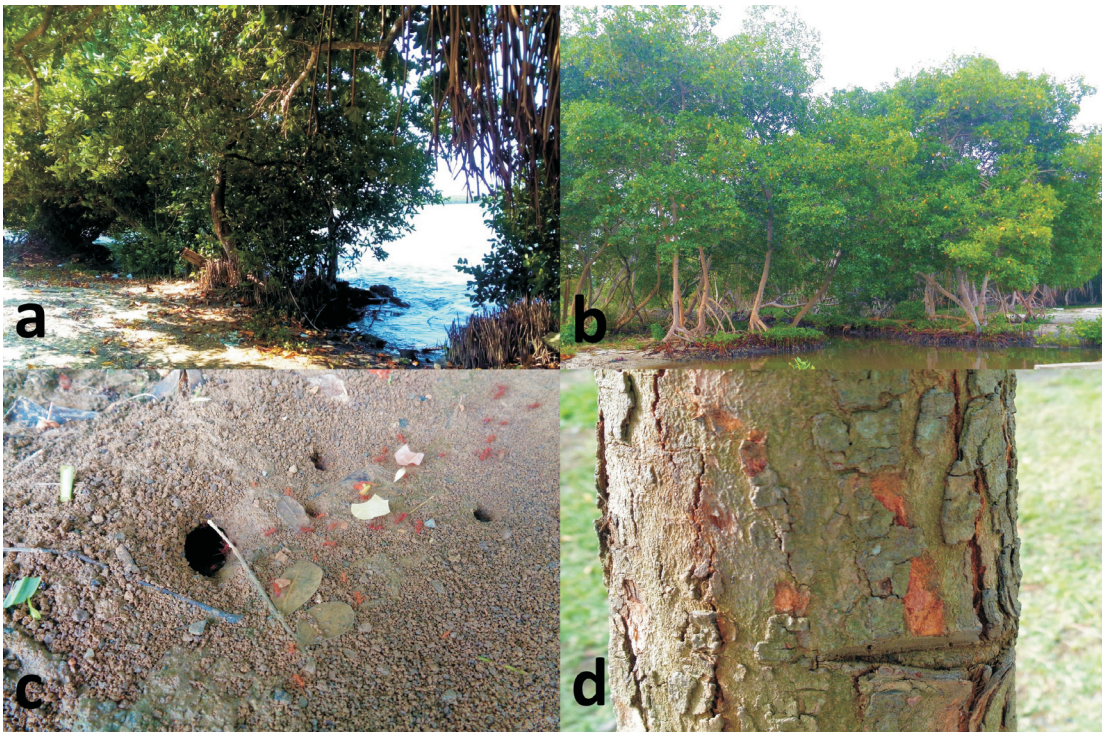
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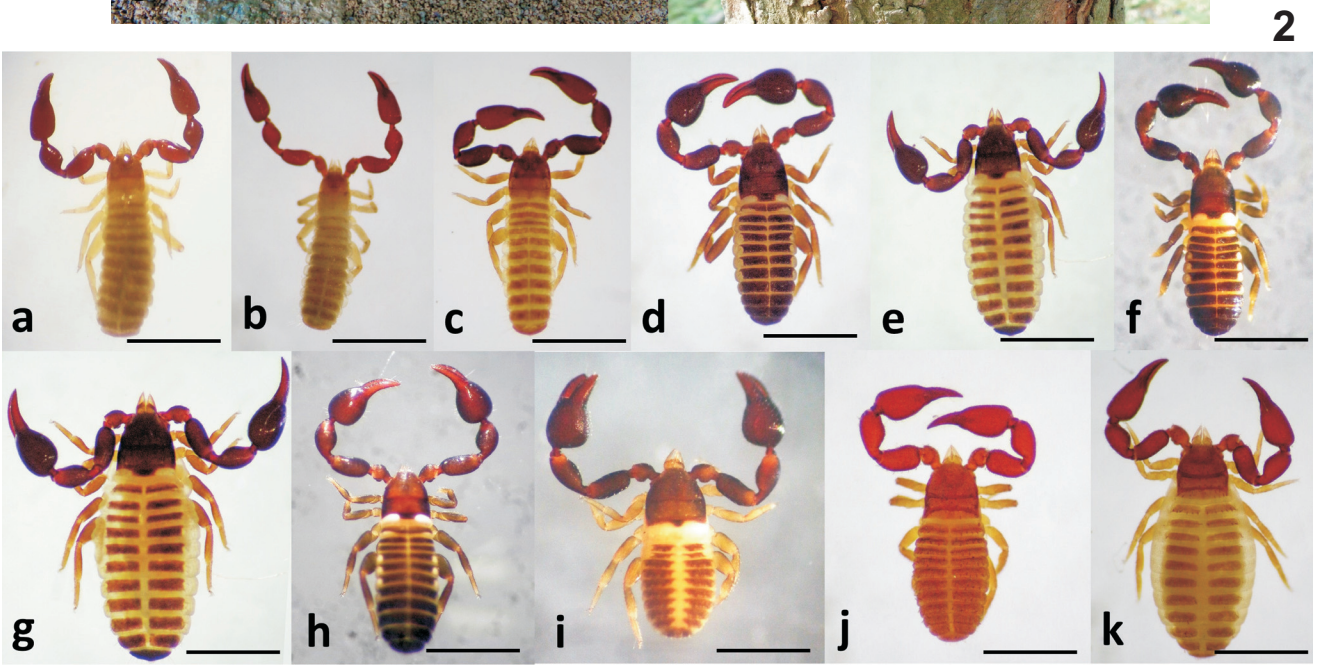


Fig. 1. Microhabitats reported in this study: **a:** Fragment of mangrove forest, Mallorquin marshes, Department of Atlántico. **b:** Fragment of mangrove forest, Punta Nisperal, San Antero. **c:** Mounds of detritus of *Atta colombica* (Guérin-Méneville, 1844). **d:** Bark of *Azadirachta indica* A. Juss., urban area, city of Montería, department of Córdoba.

Fig. 2. *Habitus*, pseudoscorpions reported in this study: **a:** *Americhernes incertus* Mahnert, 1979, male. **b:** *Americhernes bethaniae* Mahnert, 1979, male. **c:** *Gomphochernes volkeri* sp. n., male. **d:** *Parachernes adelaidae* **sp. n.**, male. **e:** *Parachernes adelaidae* sp. n., female. **f,** male, *Parachernes monteriacittatus* sp. n. **g,** female, *Parachernes monteriacittatus* sp. n. **h,** male, *Parachernes foreroa* sp. n. **i,** male, *Parachernes plumosus* (With, 1908). **j,** male, *Sphenochernes attazi* sp. n. **k,** female, *Sphenochernes attazi* sp. n. Fig. scales= 1mm.

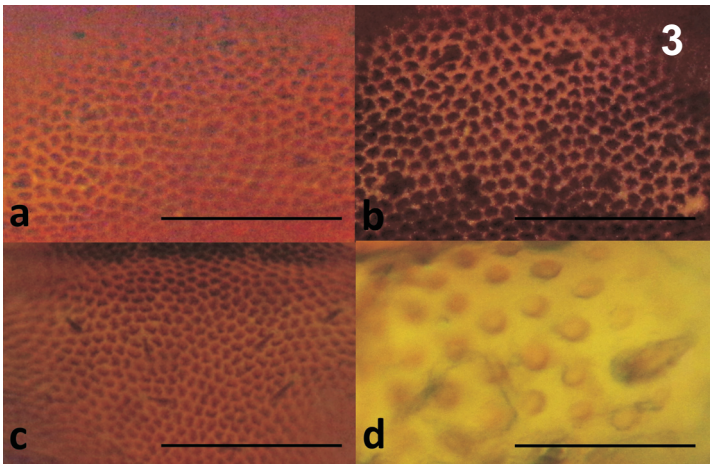
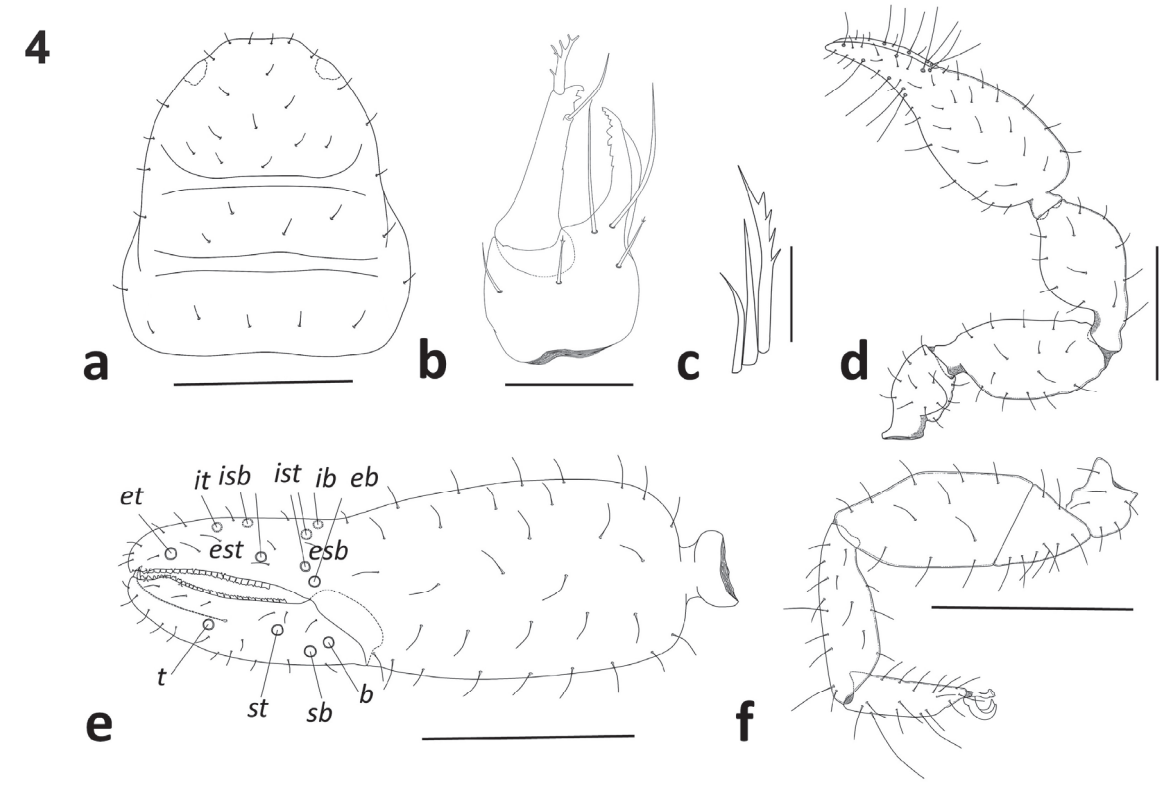


Fig. 3. Granules of carapacal metazone: **a:** *Parachernes adelaidae* sp. n. **b:** *Parachernes monteriacittatus* sp. n. **c:** *Parachernes foreroa* sp. n. **d:** *Sphenochernes attazi* sp. n. Fig. scales=500 µm.



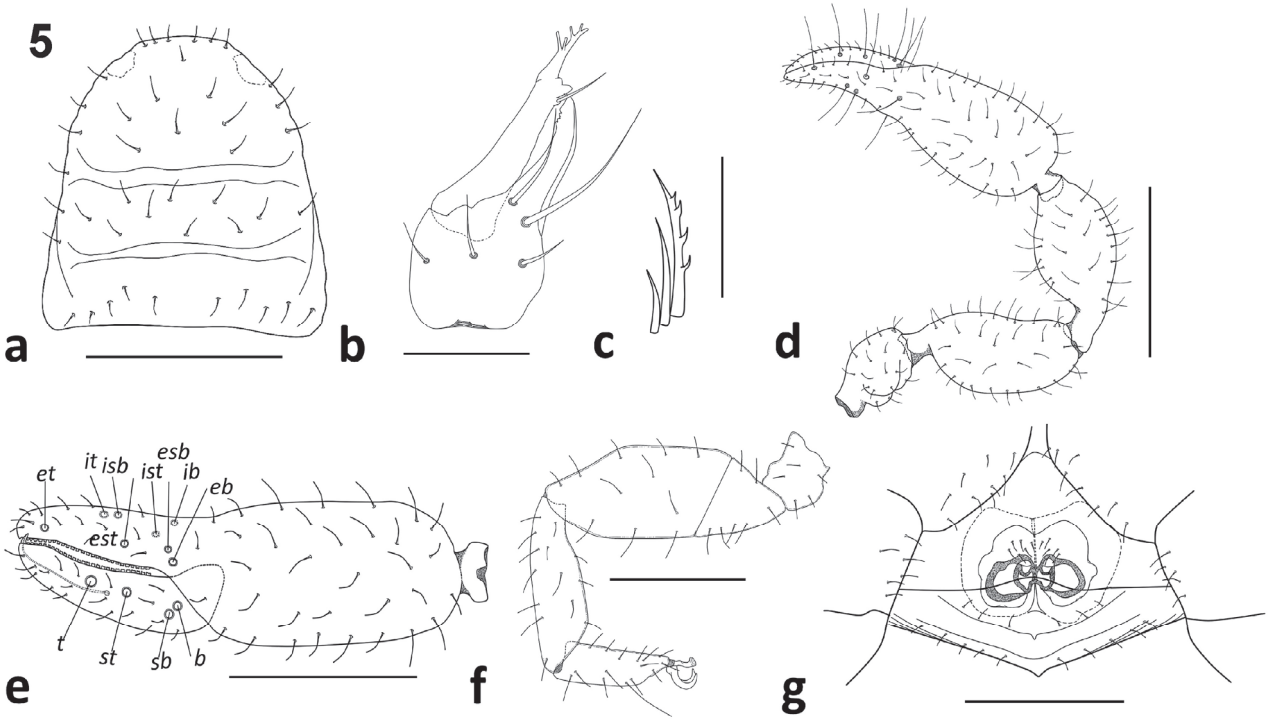
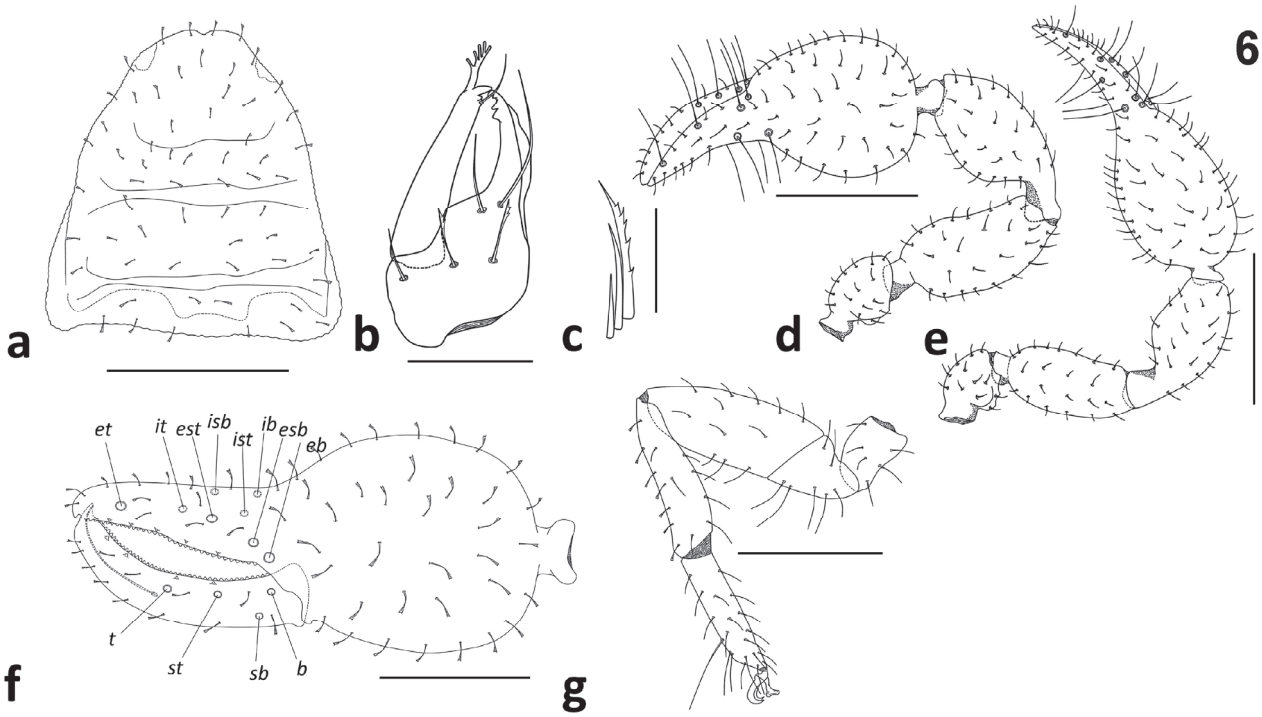


Fig. 4. *Americhernes bethaniae* Mahnert, 1979, male: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. **d:** right pedipalp, dorsal view. **e:** left chela, lateral view. **f:** left leg IV, lateral view. Scale lines = 0.5 mm (Fig. a, d-f), 0.1mm (Fig. b-c).

Fig. 5. *Gomphochernes volkeri* ***sp. n.***, male holotype: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. **d:** right pedipalp, dorsal view. **e:** left chela, lateral view. **f:** left leg IV, lateral view. **g:** genital sternites, ventral view, male paratype. Scale lines = 0.5 mm (Fig. a, d-f), 0.2 mm (Fig. G), 0.1mm (Fig. b-c).



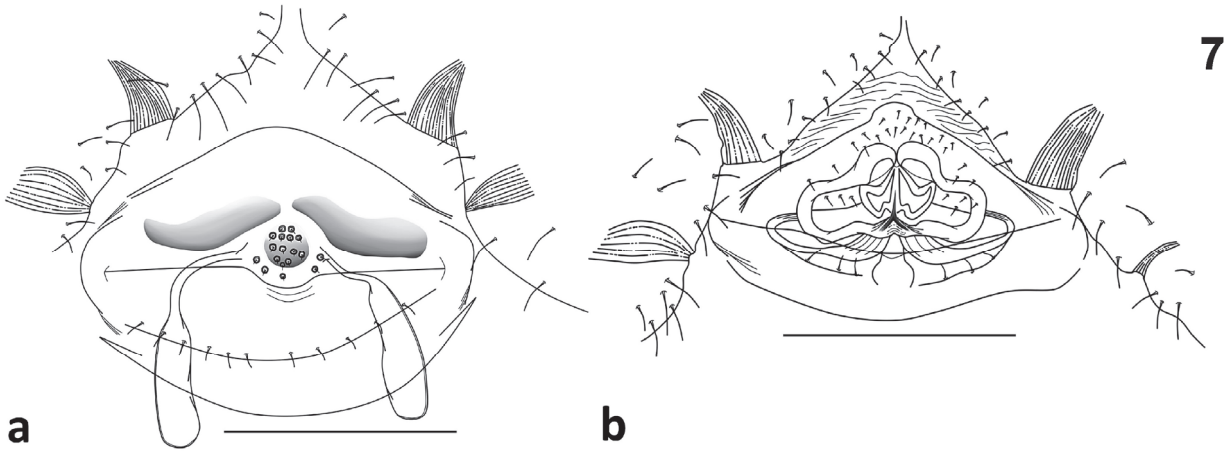
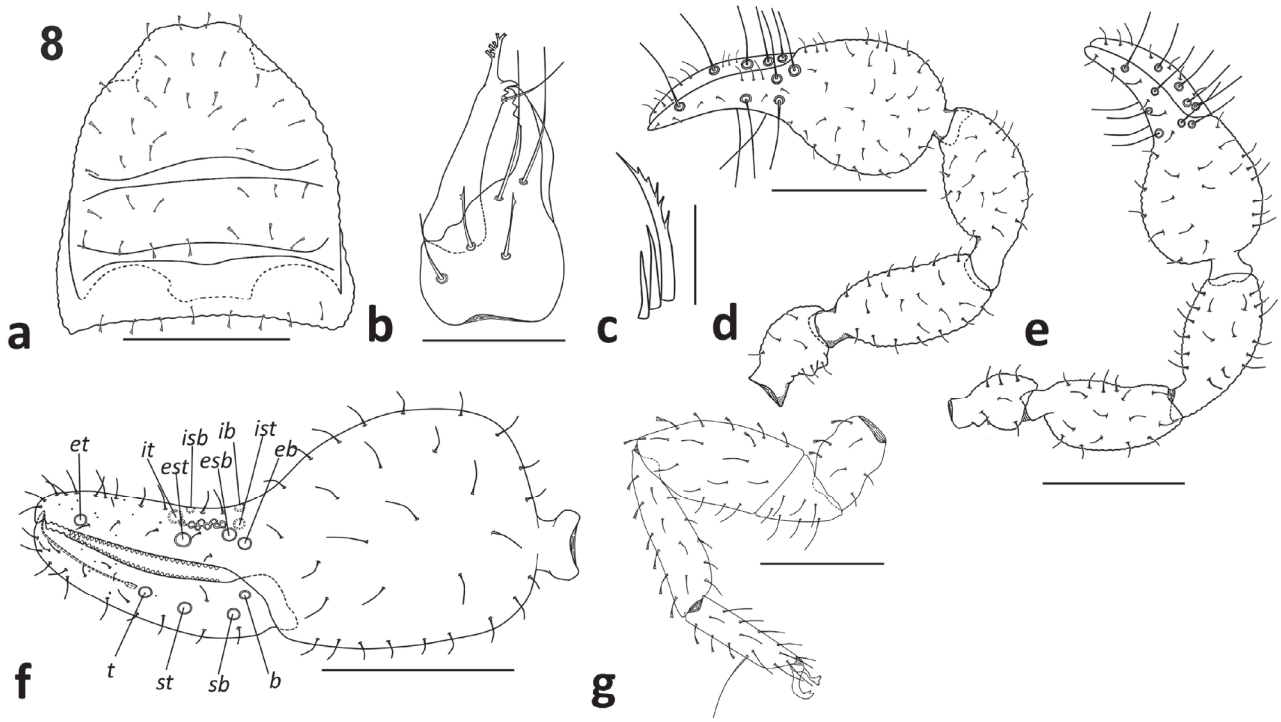


Fig. 6. *Parachernes adelaidae* ***sp. n.*** Female holotype: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. **d:** right pedipalp, dorsal view, male paratype. **e:** right pedipalp, dorsal view. **f:** left chela, lateral view. **g:** left leg IV, lateral view. Scale lines = 0.5 mm (Fig. a, d-g), 0.1mm (Fig. b-c).

Fig. 7. *Parachernes* (*P.*) *adelaidae* ***sp. n.*** Female holotype: **a:** genital sternites, ventral view. Male paratype: **b.** genital sternites, ventral view, scale lines = 0.2 mm (Fig. a-b).



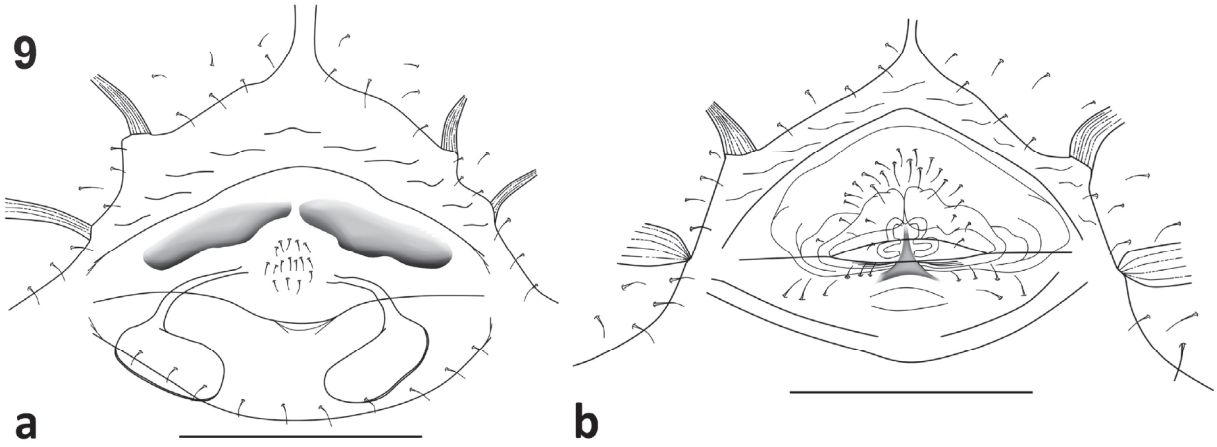
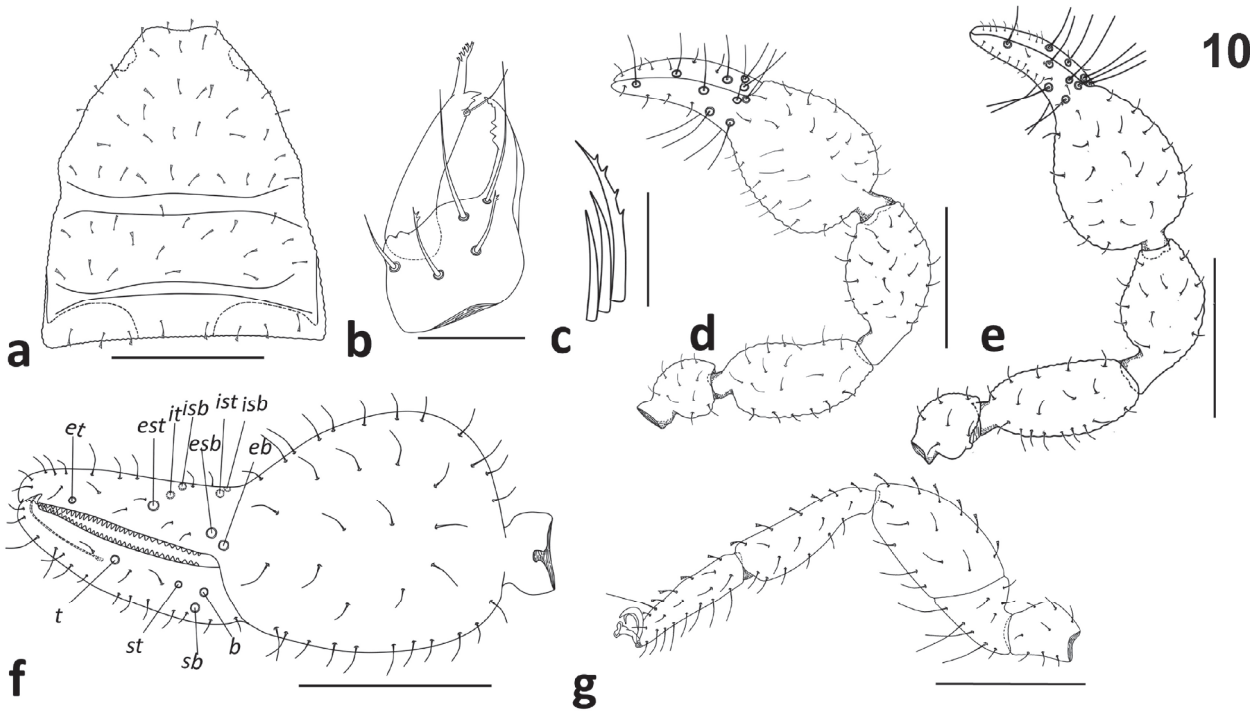


Fig. 8. *Parachernes* (*P.*) *monteriacittatus* ***sp. n.*** Female holotype: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. **d:** right pedipalp, dorsal view, male paratype. **e:** right pedipalp, dorsal view. **f:** left chela, lateral view. **g:** left leg IV, lateral view. Scale lines = 0.5 mm (Fig. a, d-g), 0.1mm (Fig. b-c).

Fig. 9. *Parachernes monteriacittatus* ***sp. n.*** Female holotype: **a:** genital sternites, ventral view. Male paratype: **b:** genital sternites, ventral view. Scale lines = 0.2 mm (Fig. a-b).



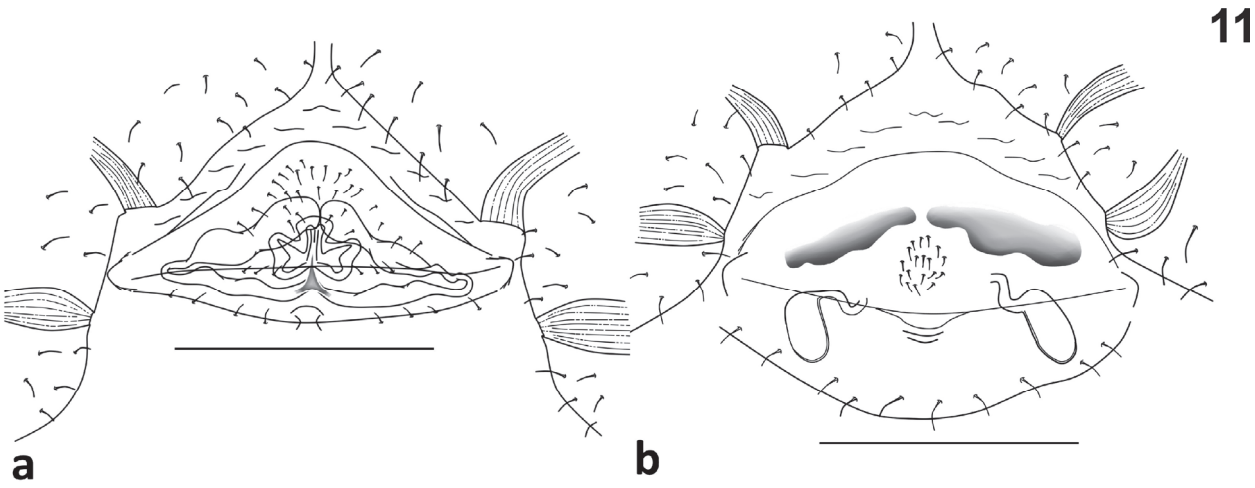
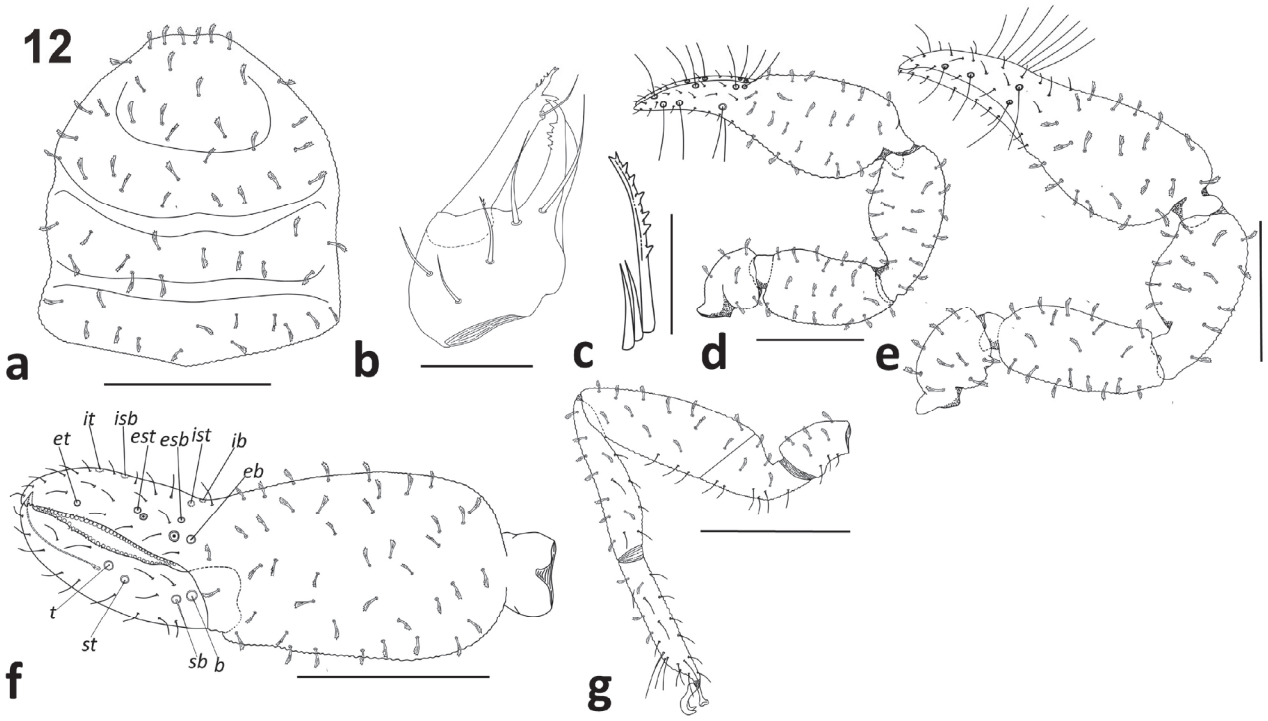
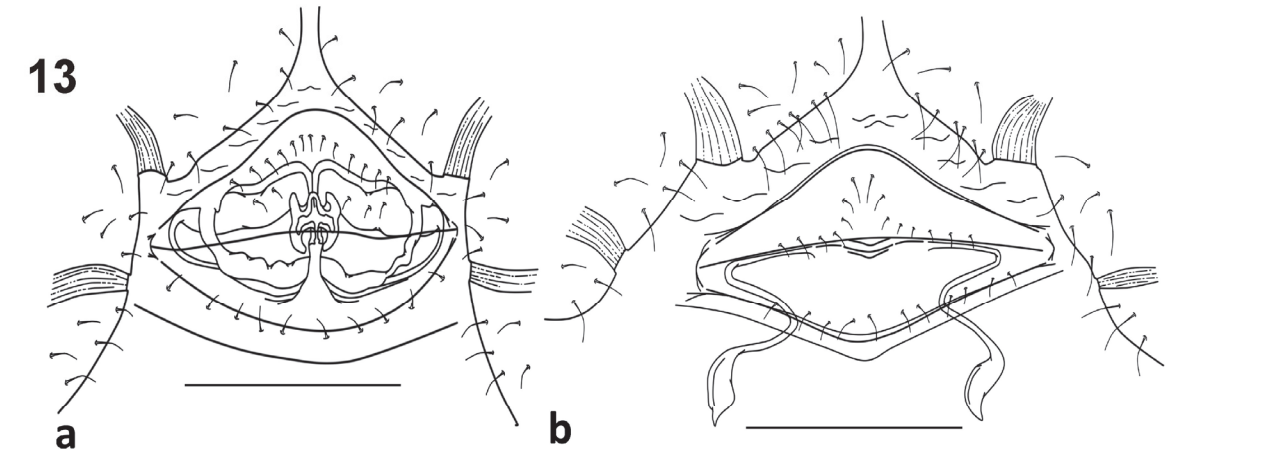


Fig. 10. *Parachernes foreroa* ***sp. n.*** Female holotype: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. Male paratype: **d:** right pedipalp, dorsal view. **e:** right pedipalp, dorsal view. **f:** left chela, lateral view. **g:** left leg IV, lateral view. Scale lines = 0.5 mm (Fig. a, d-g), 0.1mm (Fig. b-c).

Fig. 11. *Parachernes foreroa* ***sp. n.*** Female holotype: **a:** genital sternites, ventral view. Male paratype: **b:** genital sternites, ventral view. Scale lines = 0.2 mm (Fig. a-b).





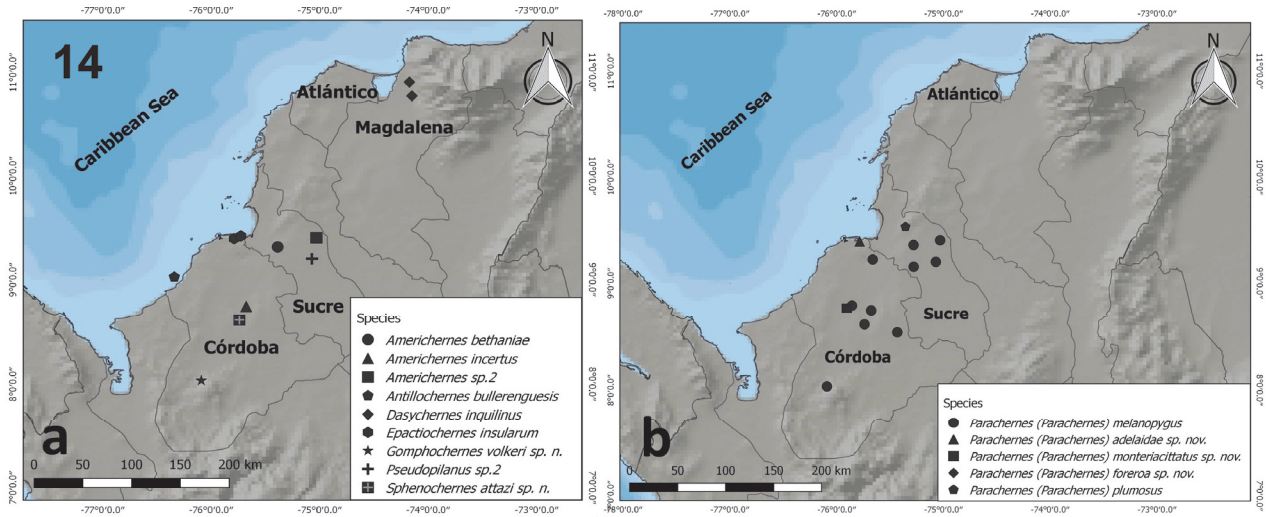


Fig. 12. *Sphenochernes attazi* ***sp. n.***, female holotype: **a:** carapace, dorsal view. **b:** left chelicera, dorsal view. **c:** left rallum, lateral view. Male paratype: **d:** right pedipalp, dorsal view. **e:** right pedipalp, dorsal view. **f:** left chela, lateral view. **g:** left leg IV, lateral view. Scale lines = 0.5 mm (Fig. a, d-g), 0.1mm (Fig. b-c). **Fig. 13.** *Sphenochernes attazi* ***sp. n.*** Female holotype: **a:** genital sternites, ventral view. Male paratype: **b.** genital sternites, ventral view. Scale lines = 0.2 mm (Fig. a-b). **Fig. 14.** Map of northern Colombia showing distribution recorded of the family Chernetidae from Colombian Caribbean region (including new records): **a:** Distribution species of Chernetids. **b:** Distribution species, genus *Parachernes* Chamberlin, 1931.