

ARTÍCULO:

**A new species of *Arucillus* Šilhavý, 1971 from the Dominican Republic (Opiliones: Laniatores: Cosmetidae)**

Abel Pérez González  
abelpg@mn.ufrj.br

Eduardo Vasconcelos  
vasconcelos@mn.ufrj.br

Laboratório de Aracnologia,  
Museu Nacional  
Universidade Federal do Rio  
de Janeiro.  
Quinta da Boa Vista s/n,  
São Cristóvão 20.940-040,  
Rio de Janeiro - RJ - Brasil.

**Revista Ibérica de Aracnología**  
ISSN: 1576 - 9518.  
Dep. Legal: Z-2656-2000.  
Vol. 7, 30-VI-2003  
Sección: Artículos y Notas.  
Pp: 135-140

Edita:  
**Grupo Ibérico de Aracnología (GIA)**  
Grupo de trabajo en Aracnología  
de la Sociedad Entomológica  
Aragonesa (SEA)  
Avda. Radio Juventud, 37  
50012 Zaragoza (ESPAÑA)  
Tef. 976 324415  
Fax. 976 535697  
C-elect.: amelic@telefonica.net  
Director: A. Melic

Información sobre suscripción,  
índices, resúmenes de artículos *on line*,  
normas de publicación, etc. en:

Página web GIA:  
<http://entomologia.rediris.es/gia>

Página web SEA:  
<http://entomologia.rediris.es/sea>

**A NEW SPECIES OF *ARUCILLUS* ŠILHAVÝ, 1971  
FROM THE DOMINICAN REPUBLIC  
(OPILIONES: LANIATORES: COSMETIDAE)**

Abel Pérez González & Eduardo Vasconcelos

**Abstract**

A new cosmetid, *Arucillus armasi* sp. n., is described from the Central Range of the Dominican Republic. This is the second known species for the genus, the other is *A. hispaniolicus* Šilhavý, 1971. The male of the new species can be easily separated from *A. hispaniolicus* by the shape of tibia IV, incrassate and with two dorsal apophyses, the presence of five tarsal segments on leg I and the pattern of whitish lines on the scutum.

**Key words:** Cosmetidae, *Arucillus*, Taxonomy, Antilles, Dominican Republic.

**Taxonomy:** *Arucillus armasi* n. sp.

**Una nueva especie de *Arucillus* Šilhavý, 1971 de la República Dominicana (Opiliones: Laniatores: Cosmetidae)**

**Resumen**

Se describe un nuevo cosmético, *Arucillus armasi*, de la Cordillera Central de la República Dominicana. Esta constituye la segunda especie del género junto a *A. hispaniolicus* Šilhavý, 1971, de la cual se separa fácilmente por presentar la tibia IV del macho engrosada con dos apófisis dorsales, cinco segmentos tarsales en la pata I y en el diseño de líneas blanquecinas del escudo dorsal.

**Palabras claves:** Cosmetidae, *Arucillus*, Taxonomía, Antillas, República Dominicana.

**Taxonomía:** *Arucillus armasi* sp. n.

**Introduction**

In 1971, the Czech arachnologist Vladimir Šilhavý published the description of a new genus and a new species of cosmetid for the Antilles: *Arucillus hispaniolicus*. The material studied, two males and a juvenile, came from the Hispaniola Island (erroneously referred to by Šilhavý as "Haiti Island"), specifically, the Loma de La Rucilla, Santiago province, Dominican Republic, collected between 8-10,000 ft altitude. The new genus is characterized fundamentally by the presence in area IV of a long bifid process ending in two acuminate spines, chelicera and basitarsus I enlarged and leg I with six tarsal segments.

Thanks to the kindness of Dr. Luis F. de Armas of the Institute of Ecology and Systematic of Havana, we had the opportunity to examine a lot of cosmetids collected in the Dominican Republic. The lot contained a new species of *Arucillus* whose description and illustrations are given below. Until now the genus *Arucillus* was one of the three monotypic genera of Cosmetidae of the Antilles along with *Prasiana* Strand, 1942, of the West Indies without a defined type locality, and *Trinimontius* Šilhavý, 1970, endemic to central Cuba (Kury, 2003).

The material studied is deposited in the Institute of Ecology and Systematic, Havana (CZACC) and the Museu Nacional - Universidade Federal do Rio de Janeiro (MNRJ). The measurements are in millimeters. The measurement of the legs are given in the following order: Trochanter / Femur / Patella / Tibia / Metatarsus / Tarsus / **Total**. The measurements of the pedipalp are given in the following order: Trochanter / Femur / Patella / Tibia / Tarsus / Claw / **Total**. Tarsal formula of anterior legs: total segments (telotarsus segments).

**Taxonomic Accounts****LANIATORES: COSMETIDAE*****Arucillus armasi* sp. n.**

(Fig. 1-16)

**TYPES:** Male holotype, no.: 3.2809, from: La Nevera, Valle Nuevo, Constanza, Provincia la Vega, República Dominicana, 29 - September - 1987, Armas, Domínguez and Rivera (CZACC). Paratypes: 3 males and 4 females, no.: 3.2810, from the same vial as the holotype (CZACC); one male and one female, no. 14318, from the same vial as the holotype (MNRJ).

**ETYMOLOGY:** Patronymic in honor of the Cuban arachnologist, Luis F. de Armas, one of the collectors of the type series, in recognition to his contribution to the knowledge of the arachnids of the Dominican Republic.

**DIAGNOSIS:**

This species can be easily separated from *Arucillus hispaniolicus* by the tibia IV of male incrassate with two dorsal apophyses, leg I with five tarsal segments, and the pattern of whitish lines in the scutum.

**REMARK.** Unfortunately, it was not possible to examine *A. hispaniolicus* because the type series is apparently lost (G. Giribet and L. Leibensperger, pers. comm.). The comparative diagnosis is based on the description and illustrations offered in Šilhavý (1971).

**DESCRIPTION OF MALE HOLOTYPE:**

**Dorsum** (Figs. 1 and 3): Anterior margin with two deep sockets for the insertion of the chelicerae, the lateral corners thickened and pointed. Frontal hump wide and not very high, finely granulated; eye mound unarmed, wide and low, not surpassing the height of the frontal hump. Lateral margins of dorsal scutum parallel markedly wider and convex at areas I and II. Areas I-IV well defined, area IV the longest; posterior margin of scutum very small, compressed by the area IV. Areas I-III unarmed, area IV with a long bifid process terminating in two acuminate spines. Posterior margin and free tergites with a row of small tubercles. Coxa IV with a small laterodorsal basal tubercle and a pointed apophysis on the distal border.

**Venter** (Fig. 2): Coxae I-IV, genital segment and anal operculum covered with small granules. Coxa I with a longitudinal row of strong tubercles. Stigmata free (not concealed).

**Chelicerae** (Fig 1-3 and 13): Greatly enlarged, basal segment with a strong bulla covered with granules, chela globose and smooth.

**Legs** I-III unarmed. Basitarsus I globose (Fig. 6). Leg IV with femur curved, patella and tibia incrassate, patella with strong dorsal tubercles, tibia with two dorsal apophyses: basal wide with rounded tip and distal larger and pointed (Fig. 9 and 10). All claws smooth. Tarsal process well developed in legs III and IV. Tarsal formula: 5(3)-10(3)-7-7.

**Pedipalp** flap like as characteristic of cosmetids. Trochanter widened in spindle and with a ventrodistal setiferous tubercle. Femur with a row of small ventral tubercles (Fig. 7 and 8).

**Male genitalia** (Figs. 14 and 15): Ventral plate subrectangular, apex with straight margin, slightly wider than base, with two groups of setae: apical group of two pairs of larger spatulate and curved and mid lateral group of three pairs of small pointed setae. Glans with strong thumb-like basal process. Stylus wide and flattened, apex convex, bordered by two rows of small pointed giving serrate appearance.

**Measurements:** Total length: 4.1. Carapace: 1.31 long, 2.16 wide. Scutum: 3.73 long, 3.16 maximum width. Chelicera: Basal segment 1.05 long, chela 2.31 long. Pedipalp: 0.6 / 1.3 / 0.5 / 1.4 / 0.8 / 0.4 / **5.0**. Legs: I: 0.5 / 1.4 / 0.7 / 0.9 / 1.3 / 1.2 / **6.0**; II: 0.4 / 2.1 / 0.9 / 1.6 / 2.5 / 2.4 / **9.9**; III: 0.5 / 1.6 / 0.8 / 1.3 / 1.5 / 1.3 / **7.0**; IV: 0.5 / 2.0 / 1.2 / 1.7 / 2.1 / 1.6 / **9.1**.

**Color** (in alcohol): Body yellowish with reticulate pattern, darker on chelicerae, pedipalps, legs, frontal hump, lateral borders of carapace, areas I-IV, posterior border, lateral borders, coxa IV laterodorsal, and free tergites. Dorsum with whitish line along the groove I, crossing medially areas I-III, crescent shaped in the laterals of the areas I-II and all along furrow IV touching the lateral borders (fig. 1). Venter darker yellowish brown reticulated in the posterior border of the genital segment, free sternites and anal operculum.

**FEMALE** (Figs. 4 and 5):

Similar to male from which differs in the following: Basitarsus I not incrassate (Fig. 6), chelicerae normal (not enlarged) (Figs. 5 and 11), leg IV not incrassate, and tibia IV lacking apophyses.

**Measurements:** Total length: 4.46. Carapace: 1.52 long, 2.0 wide. Scutum: 4.2 long, 2.84 maximum width. Chelicera: basal segment 0.63 long, chela 1.1 long. Pedipalp: 0.6 / 0.9 / 0.5 / 0.9 / 0.6 / 0.2 / **3.7**. Legs: I: 0.4 / 1.2 / 0.6 / 0.9 / 1.1 / 1.1 / **5.3**; II: 0.3 / 1.1 / 0.9 / 1.4 / 1.7 / 2.3 / **7.7**; III: 0.5 / 1.7 / 0.9 / 1.1 / 1.4 / 1.2 / **6.8**; IV: 0.5 / 2.1 / 1.0 / 1.5 / 2.1 / 1.4 / **8.6**.

**VARIATION:**

Tarsal formula (n= 10): 5 (3) / 9-12(3) / 6-7 / 7.

**MEASUREMENTS:**

Males (n=5) Total length: 4.0 - 4.4. Carapace: 1.3 - 1.8 long, 2.1 - 2.6 wide. Scutum: 3.7 - 4.3 long, 2.8 - 3.4 maximum width.

Females (n=5) Total length: 3.9 - 4.5. Carapace: 1.3 - 1.5 long, 2.0 - 2.1 wide. Scutum: 3.8 - 4.2 long, 2.8 - 3.0 maximum width.

Two male paratypes are poecilandric, having small chelicerae and so are similar to (although slightly larger than) females (Fig. 12). The poecilandric males retain the sexually dimorphic characters of the incrassate basitarsus I and leg IV and the presence of an apophysis on tibia IV.

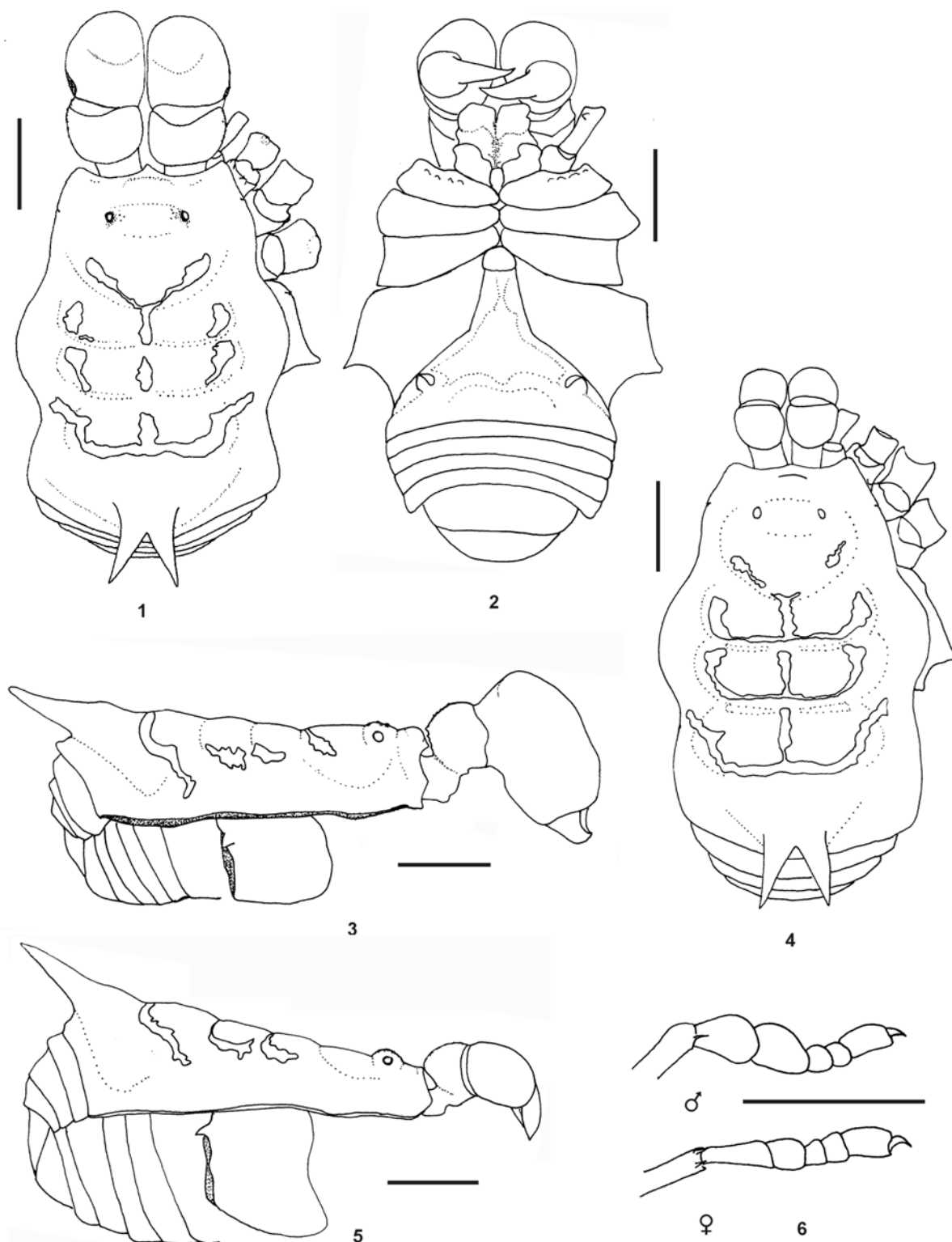
**NATURAL HISTORY:**

The individuals were captured under stones and logs in a montane pine grove (2,200 m) with an average yearly temperature of 18.0 °C (Maximum average, 24.8; Minimum average, 11.1) and an average precipitation of 1,040 mm.

**DISTRIBUTION:** Known only from type locality (Fig 16).

**Discussion**

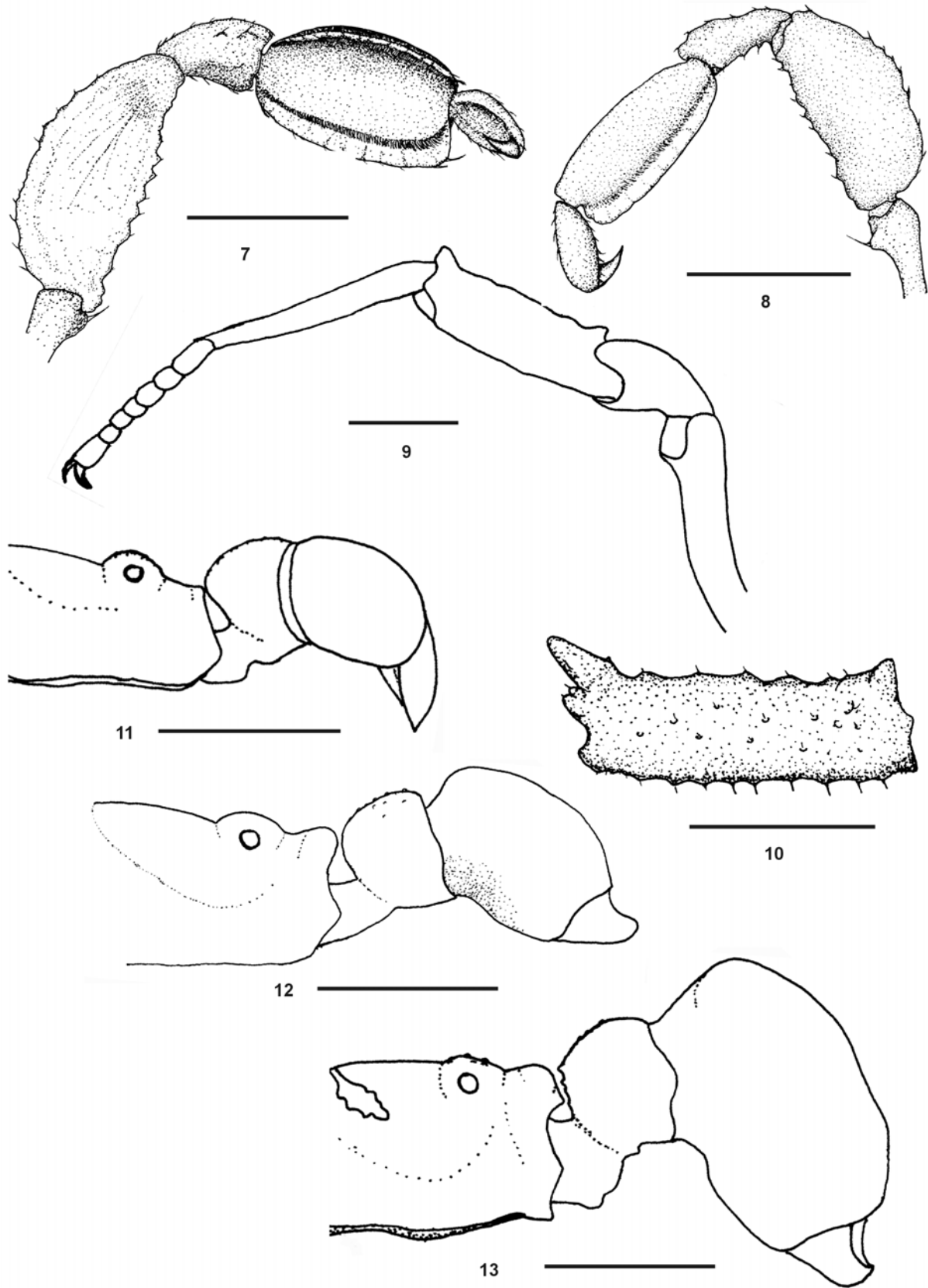
One of the differences between *Arucillus hispaniolicus* and *A. armasi* n. sp. is the number of tarsal segments,



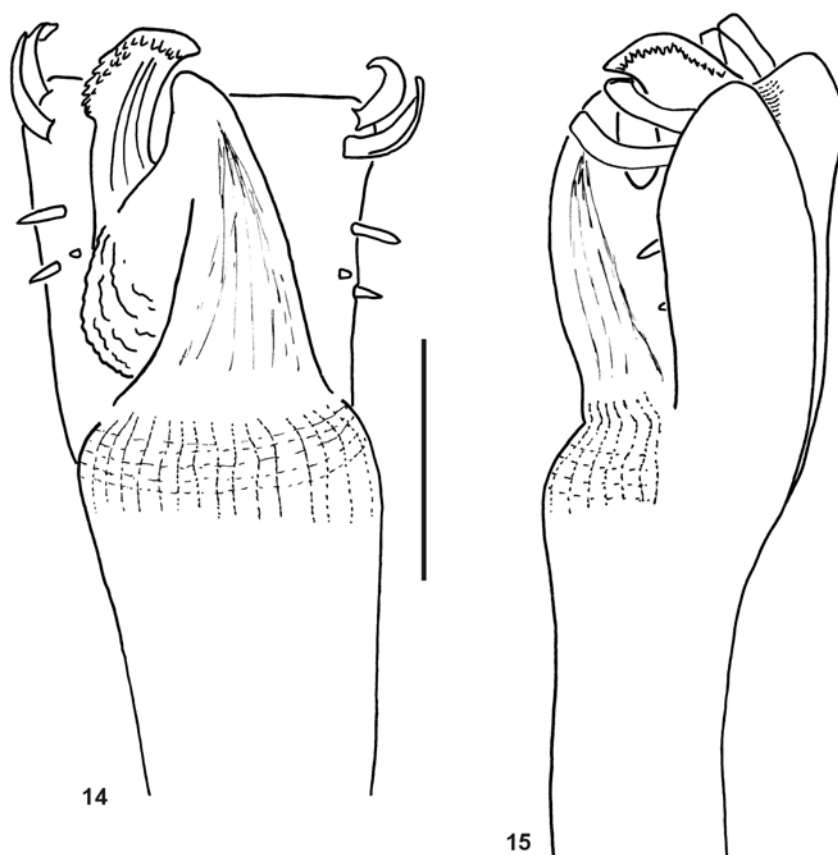
**Figs. 1-6.** *Arucillus armasi* sp. n.; 1-3: Holotype: 1: dorsal view; 2: ventral view; 3: lateral view. 4: female dorsal view; 5: female lateral view; 6: male and female tarsus legs I. Scale bar: 1 mm

six and five respectively. In the Roewerian system this difference would place the species into different genera; however, they are clearly congeneric. This is further evidence that the systematic significance of tarsal segmentation was widely overvalued in the past.

Species of the genus *Arucillus* seem to live only above the 2,000 meters on the level of the sea. One of our concerns was that both species lived in the Central Mountain range of the Dominican Republic in seemingly adjacent localities. However, as can be seen on



**Figs. 7-13.** *Arucillus armasi* sp. n.; **7:** pedipalp mesal view; **8:** pedipalp ectal view; **9:** leg IV retrolateral view; **10:** tibia IV retrolateral view; **11-13:** Degree of cheliceral development in *Arucillus armasi* sp. n.; **11:** female; **12:** pöcilandric male; **13:** normal male. Scale bar: 1 mm



Figs. 14-15. Distal part of penis of *Arucillus armasi* sp. n.; 14: dorsal view; 15: lateral view. Scale bar: 0.1 mm

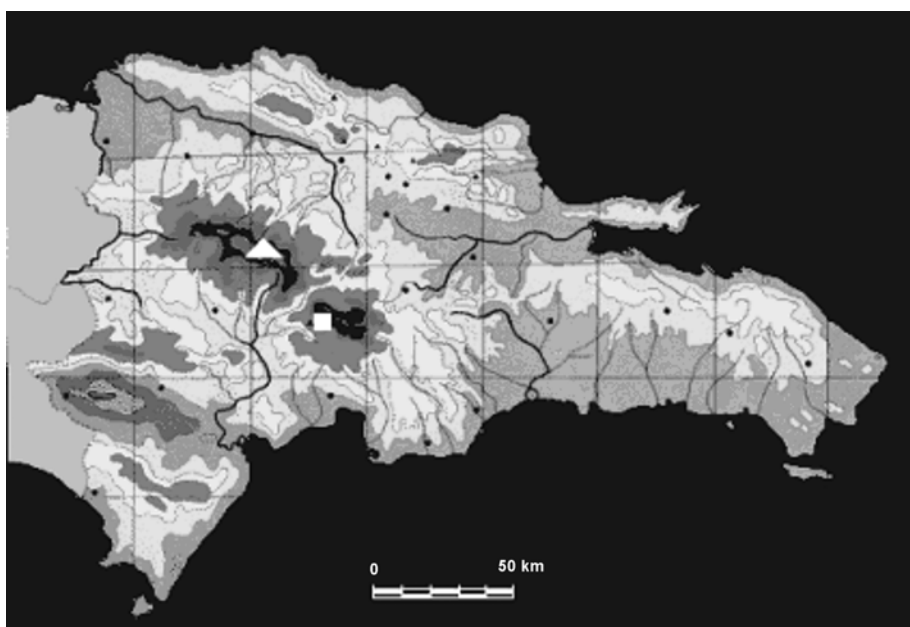


Fig. 16. Distribution of the genus *Arucillus* Šilhavý. White triangle: *A. hispaniolicus* Šilhavý; White square: *A. armasi* sp. n.

a map (Fig. 16), La Nevera and the Loma de La Rucilla are well separated by a valley which would favor an allopatric speciation. Additional support for this hypothesis is from two very closely related species of scorpions which have distributions identical to *Aruci-*

*illus. Tityus quisqueyanus* Armas, 1982, lives in La Nevera and vicinity (1,800 - 2,300 m) and is similarly isolated from *Tityus altithronus* Armas, 1999, which inhabits Loma de La Rucilla and Pico Duarte (2,600 - 3,087 m).

The family Cosmetidae urgently needs a revision using the modern concepts of the opilionologic systematics. The family has widely suffered with the typological proliferation of taxa and the artificial contraction caused by unjustified synonymies (e.g. resp. Roewer, 1923; Goodnight & Goodnight, 1953). The poor state of current knowledge precludes discussion of the relationship of *Arucillus* to other genera. For the moment we prefer to accept the conclusion of Šilhavý, that *Arucillus* is closest to *Trinimontius* Šilhavý, 1970, until future studies clarify these relationships.

### Acknowledgements

Thanks to Luis F. de Armas for the loan of the studied material and for the data offered on the localities and the scorpions of the Dominican Republic. Gonzalo Giribet and Laura Leibesperger kindly searched for the type series of *Arucillus hispaniolicus*. Thanks to A. B. Kury for the comments on the manuscript and its translation to English. Darrell Ubick read and commented on an earlier version of this manuscript. Thanks to the Fundação José Bonifácio (FUJB) for the climatization of the Laboratorio de Aracnologia of the Museu

Nacional, Rio de Janeiro. This study was possible thanks to the scholarship from the program CAPES/CNPq – IEL Nacional – Brazil for APG and the scholarship (Master degree) from CNPq, Brazil for EV.

### Bibliography

- ARMAS, L. F. DE 1982. Adiciones a las escorpiofaunas (Arachnida: Scorpiones) de Puerto Rico y República Dominicana. *Poeyana*, **237**: 1-25.
- ARMAS, L. F. DE 1999. Quince nuevos alacranes de La Española y Navassa, Antillas Mayores (Arachnida: Scorpiones). *Avicennia*, **10-11**: 109-144 .
- GOODNIGHT, J. C. & M. L. GOODNIGHT 1953. The opilionid fauna of Chiapas, Mexico, and adjacent areas. *Am. Mus. Novit.*, **1610**: 1-81.
- KURY, A. B. 2003. Annotated catalogue of the Laniatores of the New World (Arachnida, Opiliones). *Rev. Iber. Aracnol.*, special vol. n° **1**, 337 pp.
- ROEWER, C. F. 1923. *Die Weberknechte der Erde. Systematische Bearbeitung der bisher bekannten Opiliones*. 1116 pp., Gustav Fischer, Jena.
- ŠILHAVÝ, V. 1971. A further new genus and species of cosmetid from the Antilles: *Arucillus hispaniolicus* gen. n., sp. n. (Arachnoidea, Opilionea). *Acta ent. bohemoslov.*, **68**: 138-140.