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Tardigrada from a sub-Andean forest in the Sierra Nevada de Santa Marta (Colombia) with the description of *Itaquascon pilato* sp. nov.

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Abstract

Currently only 32 species of limno-terrestrial tardigrades have been reported in the literature for Colombia. Our study focused on both heterotardigrades and eutardigrades, which were extracted from eight samples of bryophytes and lichens collected in a sub-Andean forest transect in the Sierra Nevada de Santa Marta, Colombia. Fourteen species were found, six of which are new records for Colombia: *Echiniscus madonnae* Michalczyk & Kaczmarek, 2006, *Echiniscus virginicus* Riggan, 1962, *Milnesium krzysztofi* Kaczmarek & Michalczyk, 2007, *Doryphoribius amazonicus* Lisi, 2011, *Isohypsibius sattleri* (Richters, 1902) and *Diphascon higginsii* Binda, 1971; and one new to science. *Itaquascon pilato* sp. nov., is characterized by having smooth cuticle, no eyes, buccal tube almost as long as the pharyngeal tube, well developed, obvious stylet furcae with long branches, slender claws, no lunules and no cuticular bars on the legs. The new species differs from *I. umbellinae* Barros, 1939, the most similar species, in having the stylet supports inserted precisely at the border between buccal and pharyngeal tube, more slender claws and more pronounced length differential between the external and internal claws of each leg. The total number of Colombian limno-terrestrial tardigrade species is raised to 37.

Key words: biodiversity, Magdalena, water bears, Neotropics.

Resumen

Hasta la fecha solo se conocen 32 especies de tardígrados limno-terrestres para Colombia; esta investigación se concentra en el estudio tanto de heterotardígrados como de eutardígrados encontrados en ocho muestras de briofitos y líquenes colectados en un transecto de bosque sub-Andino en la Sierra Nevada de Santa Marta, Colombia. Se encontraron 14 especies de las cuales, seis son nuevos registros para Colombia: *Echiniscus madonnae* Michalczyk & Kaczmarek, 2006, *Echiniscus virginicus* Riggan, 1962, *Milnesium krzysztofi* Kaczmarek & Michalczyk, 2007, *Doryphoribius amazonicus* Lisi, 2011, *Isohypsibius sattleri* (Richters, 1902) y *Diphascon higginsii* Binda, 1971; una es nueva para la ciencia, *Itaquascon pilato* sp. nov., que se caracteriza por presentar una cutícula lisa, sin ocelos, tubo bucal casi tan largo como el tubo faríngeo, bien desarrollado y por lo tanto evidente, furca del estilete con ramificaciones largas, garras más bien delgadas, patas sin lúnulas y sin barras; la especie más similar es *I. umbellinae* Barros, 1939, pero la nueva especie difiere de esta porque posee los soportes del estilete insertados precisamente en el límite entre el tubo bucal y el tubo faríngeo, las garras son más delgadas y también existe una amplia diferencia en la longitud entre las garras internas y externas de cada una de las patas. De esta manera, el número total de tardígrados limno-terrestres conocidos para Colombia aumenta a 37 especies.

Introduction

Colombia has been considered one of the most megadiverse countries; its territory comprises three biodiversity hotspots: Choco-Darien, Caribbean, and Tropical Andes (Myers *et al.* 2000). It often occupies one of the top

Itaquascon pilatoi **sp. nov.** differs from *I. unguiculum* in having a narrower buccal tube (*pt* 16.7–16.9 in *I. unguiculum*), which is also longer with respect to the total length of the buccal-pharyngeal tube (*pbf* 38.8–40.8 in *I. unguiculum*), and more developed stylet furcae.

The new species differs from *I. cambawarrense* in having slightly longer buccal tube with respect to the total length of the buccal-pharyngeal tube (*pbf* 44.3–46.4 in *I. cambawarrense*), the stylet furcae are triangular-shaped in *I. cambawarrense* without the elongate branches of the new species. In addition, the *pt* values of the internal/anterior claws of all legs are higher in the new species, while the *pt* values of the external/posterior claws of all legs are similar in both species. This corresponds to a more pronounced difference in length between internal (or anterior) and external (or posterior) claws of each leg in *I. cambawarrense*, compared with the new species. Indeed, the percent ratio between internal (or anterior) and external (or posterior) claw of each leg are higher in *I. pilatoi* **sp. nov.**, as the internal-anterior claw of each leg are slightly more than half the length of the external-posterior claw (58.3–64.6%, Table 2), while in *I. cambawarrense* the internal (or anterior) claws are on average shorter, less than half the length of the external-posterior claws (44.5–50.4%, Pilato & Binda 2002).

Itaquascon pilatoi **sp. nov.** differs from *I. pisoniae* in having a shorter buccal tube with respect to the total length of the buccal-pharyngeal tube (*pbf* 54.7–55.4 in *I. pisoniae*), more developed stylet furcae, which also have more elongate branches, longer claws (which are more slender, especially the proximal portion of the external/posterior claw main branches), and absence of cuticular bars on the legs.

Conclusions

Our results indicate that, like other taxa (Myers *et al.* 2000), there is a high diversity of tardigrades within the Sierra Nevada de Santa Marta region. From only eight samples representing a small transect of a sub-Andean forest, we have raised the number of reported Colombian tardigrade species from 30 to 37, and included a newly described species. The very limited number of reports and, correspondingly, the low number of tardigrade species currently recorded for Colombia does not do justice to the potential tardigrade biodiversity of this region when considering the region's recognition as a biodiversity hotspot (Myers *et al.* 2000). It is clear that numerous further studies are necessary to expand our knowledge of this fascinating animal, and this encourages us to further research.

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