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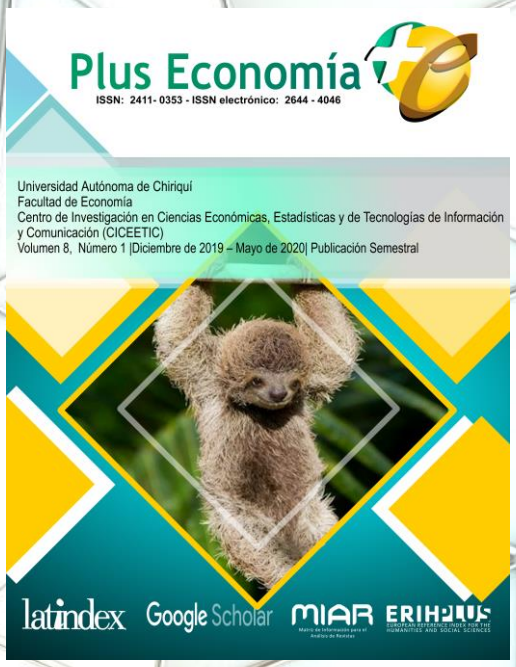

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FIRST REPORT OF *PORRORCHIS NICKOLI* (ACANTOCEPHALA: PLAGIORHYNCHIDAE) AND *CRUZIA* SP. (NEMATODA: KATHLANIDAE) AS PARASITES OF *PHILANDER OPOSSUM* (MAMMALIAN, DIDELPHIDAE) FROM CHIRIQUI, PANAMA

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Abstract:

A study was conducted on the internal parasitology of an individual of *Philander opossum*, captured in the La Verguenza creek, Chiriqui-Panama. Two intestinal parasites are recorded at first time for *P. opossum* (*Porrorchis nickoli* and *Cruzia* sp.) in Panama.

Keywords: Four-eyed opossum, Tlacuache, Helminthes, UNACHI

Resumen

Se realizó un estudio sobre la parasitología interna de un individuo de *Philander opossum*, capturado en la quebrada La Verguenza Chiriquí-Panamá. Dos especies de parásitos intestinales de *P. opossum* (*Porrorchis nickoli* y *Cruzia* sp.) son reportados por primera vez para Panamá

Palabras claves: Zarigüeya de cuatro ojos, Tlacuache, Helmintos, UNACHI.

Introduction

The isthmus of Panama has a great richness and diversity of mammals, which total 259 species. This number represent 4.8 % of global known species. Exists few endemic mammalian species, However, rodents are the largest native species group with (11 spp.), closely followed by srhews (2 spp.), two orders of marsupials (Phyllophaga y Didelphimorphia) with two species and at last place two species of monkeys and bats with one species. The order Didelphimorphia in Panama has (11 spp.) (Fundación de Parques Nacionales y Medio Ambiente, 2007).

Philander opossum is known as four-eyed oposum or tlacuachillo, it has a weight of 240-400 g and has a large from 250 to 350 mm. It is characterized being a small species and having one brownish or white rounded spots above each one eyes. The ventral región of the body have a cream coat. *Philander* has a prehensile tail. This species is commonly found at mature forestor with secondary vegetation áreas or borderline between forest and grassland. It is found in fores to nearby rivers or other wáter masses *Philander* eats small invertebrates as insects or crustaceans ot fruits too (*Ficus* spp. and *Cecropia obstusifolia*) (Coates & Estrada, 1986). This species has nocturnal habits and commonly keeps to itself except in reproductive season. It can be found from southern Mexico to Paraguay and northern Argentina (Mora, 2000).

Parasithological reports of *P. opossum* for Panamá may be mentioned: *Trypanosoma rangeli* (Calloway, 1971) in Tolson et al. (1976), *T. cruzi* (Sousa, 1972), *Philandrophilus magnacirrus* n. sp (Thatcher, 1970), *Amblyoma auricularium*, *A. geayi*, *Ixodes luciae* (Bermúdez et al. 2018) and *Archemyobia pectinata* (Méndez, 1972). Present study consists of an intestinal disection in order to determinate parasites of this small species of mammal.

Materials and method

Area description: A young opossum was rescued from the segment of the La Verguenza stream, near the Autonomous University of Chiriqui. The UTM coordinates of the place are 932350 m N and 340325 m E, located on map chart 3741 III series E 762 of the National Geographic Institute of TOMMY GUARDIAS. The soil is sandy-clayey, with a clayey rubber covering of 1.00 m to 1.25 m, followed by a deep layer of gravel sand and fine sand on the clay and gravel stratum (Camacho et al. 2000). We found the water table from two to nine m deep. Rainfall in the area studied according to the weather stations of David City is around five mm per month in the dry season and c. to. 200 mm per month in the rainy season. October is the rainiest month of the year. The temperature is 23 °C to 32 °C (highest in February in the dry season) according to the General Directorate of Statistics and Census (1999).

Sample preparation and collection: We put the specimen at a cleaned surface and we cut by the medial longitudinal line exposing peritoneal cavity which were explored to look for parasitosis signes. After we cuted the intestinal tract between gastro duodenal and rectal segments, including the cecum appendix. All the visible parasites found were put in ethanol 95 % and formaline 1:1 to be preserved. As number as location of any parasite found were recorded and the specimen of *P. opossum* was prepared to preserve the skeleton. In order to study the parasites, we put it each one in distilled water and use a stereomicroscope 45X to amplify structures. The parasites were identified by the article of (Salgado & Cruz, 2002) and (Vicente et al. 1997).

Results

Twelve parasitic individuals were found at the host intestine (*Philand*er *opossum*). Eight of these, belonging to the class of Acanthocephala and the *Porrorchis nickoli* species (none of the specimens were sexed) (See table 1) and four specimens belong to the class of Nemathode and females of the genera *Cruzia* sp. wich has longitudinal mesurements of eight mm; eight mm; nine mm and 10 mm, respectively (8.75 mm ± 0.95 mm; n=4). Both *Cruzia* sp.

and *Porrorchis nickoli* were found at duodenal región.

Table 1. Longitudinal measurements of *P. nickoli* found in the host *P. opossum*.

Nº of individuals of *P. nickoli*	1	2	3	4	5	6	7	8
Length (mm)	27	25	27	26	25	19	18	19

Note: *P. nickoli* individuals in this study presented a deviation in their length (23.25 mm ± 3.88 mm; n=8).

Discussion

Porrorchis nickoli was described before (Salgado & Cruz, 2002) being obtained from intestine of *Philander opossum* and other species of Didelphidae and *Nasua* from Mexican territory. The next specimen description is based in Salgado & Cruz's original publication (2002) and the taxonomic position at the catalogue of Salgado (2005) that is congruent with our results. "This species is distinguished from other *Porrorchis* species by its small proboscis (0.286–0.428 mm long × 0.273–0.438 mm wide), a proboscis armature consisting of 22–24 vertical rows of 7 or 8 hooks per row, and the male reproductive system extending postequatorially and occupying only half of the trunk. This is the first known occurrence of a *Porrorchis* species in the Western Hemisphere. *Porrorchis nickoli* is described as adults of medium size, pale yellow to white. Trunk cylindrical, slender elongate, thin walled, aspinose, slightly swollen dorsally near anterior end in both sexes. Mature females are larger than males. Main lacunar canals lateral, branching into reticulary anastomosing ducts. Body wall containing small round to ovoid hypodermal nuclei, moderately numerous, evenly distributed. Proboscis subglobular, slightly swollen, with 22–24 rows of 7 or 8 hooks each. Anterior hooks with posteriorly directed, well-developed, posteriorly enlarged simple root; fourth hook of each row the largest and strongest; basal hooks slender, with anteriorly directed manubria. Each hook surrounded at its base by definite theca of proboscis cuticle. Armature similar in both sexes. Neck well developed, robust, conical. Proboscis receptacle cylindrical, double walled,

inserted at base of proboscis. Brain at about middle third of receptacle. Lemnisci approximately equal in length, flat, tongue shaped, broadest near posterior ends, much longer than proboscis receptacle. Testes oval, tandem, postequatorial. Cement glands 4, elongate. Male genital pore nearly terminal. Female genital pore subterminal. Eggs elliptical, without polar swellings.

Determination of the genera *Cruzia* sp. it is based on the description of Travassos (1917) in Vicente et al. (1997), this nemathode has the characterisc of three subtriangulars labia in the mouth. The oesophage is cilindric posteriorly elongated. The intestine has an anterior cecum. Females has the vulva nearby median body región. Its has a fine pointed tail. Another distinctive feature of the genus *Cruzia* sp. is the presence of well-defined denticles in the pharyngeal part of the oesophagus (Anderson et al. 1974).

Conclusion

This study contributes to the parasite fauna of *Philander Opossum* providing two new reports of species location for Panamá (*Porrorchis nickoli* y *Cruzia* sp.). This new information permit us to begin to fill the void about the parasitism in the *Philander opossum* species.

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