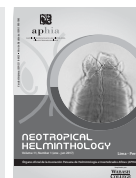




Neotropical Helminthology



RESEARCH NOTE / NOTA CIENTÍFICA

CALONECTRIS BOREALIS (AVES, PROCELLARIIDAE) AS A NEW HOST RECORD FOR TWO NEMATODE SPECIES IN BRAZIL

CALONECTRIS BOREALIS (AVES, PROCELLARIIDAE) COMO UN REGISTRO NUEVO PARA DOS ESPECIES DE NEMÁTODOS EN BRASIL

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ABSTRACT

Contracecum pelagicum Johnston & Mawson, 1942 and *Seuratia shipleyi* (Stossich, 1900) are reported in Brazil parasitizing *Calonectris borealis* (Cory, 1881), which represents a new host record for both nematode species. The main measurements of these species in the new host are presented.

Keywords: Aves – Brazil – *Contracecum* – Nematoda – new host record – *Seuratia*

RESUMEN

Contracecum pelagicum Johnston & Mawson, 1942 y *Seuratia shipleyi* (Stossich, 1900) están registrados en Brasil parasitando *Calonectris borealis* (Cory, 1881), que es un nuevo huésped para ambas especies. Se presentan las principales medidas de estas especies en el nuevo huésped.

Palabras Clave: Aves – Brazil – *Contracecum* – Nematoda – nuevo registro de huésped – *Seuratia*

INTRODUCTION

Calonectris borealis (Cory, 1881) is known to migrate across the Atlantic towards the subtropical convergence off Southern Brazil, Uruguay and

Argentina, being common there during the austral summer, and most records seem to be of young dying during their first migration (Olmos, 2002). According to IUCN red list, this species is considered as Least Concern (<http://www.iucnredlist.org/details/22732244/1>).

In Brazil, *C. borealis* is a marine and coastal bird that occurs as seasonal migrant and do not breed in the country. *C. borealis* nests in Savage Islands, the Azores, the Canary Islands and Madeira. The wintering area of this bird extends from southern Brazil to northern. In Brazil, this species occurs in ocean waters off the continental shelf (Vooren & Brusque, 1999). According to Petry *et al.* (2012) seabirds from the northern hemisphere are rarely seen alive on the beaches of Brazil, as they are usually found only dead individuals.

During examination of *C. borealis* two nematodes species were found and are studied herein.

MATERIAL AND METHODS

One specimen of *Calonectris borealis*, found dead in Linhares, Espírito Santo, was examined for helminths and harbored nematodes in the buccal cavity and oesophagus. The nematodes collected were washed in 0.9% NaCl solution and fixed in ethanol 70%. For light microscopical examination (LM) the nematodes were cleared in phenol and observed using a Zeiss Axioscope 2 microscope equipped with a digital camera. All measurements are in millimeters, and the range is presented followed by the mean in parentheses. Specimens studied were deposited in the Helminthological Collection of the "Instituto Oswaldo Cruz" (CHIOC) in Brazil.

RESULTS

From the 17 nematode specimens collected, 14 belong to *Contraecum pelagicum* and 3 to *Seuratia shipleyi*. Considering that both species are well described, we present in this study only the main measurements with a brief description. The morphometric study of our material is in agreement with those anteriorly reported.

Contraecum pelagicum Johnston & Mawson, 1942 (Figure 1)

Host: *Calonectris borealis* (new host record).

Site: buccal cavity and oesophagus.

Locality: Linhares, Espírito Santo State, Brazil.
Material deposited in the CHIOC n° 38.377.

Male (based on 5 specimens): Body 23.17 (21.50-26.17) in length and 0.80 (0.70-0.92) maximum wide. Nerve ring 0.50 (0.47-0.56) from anterior end. Oesophagus 3.22 (2.87-3.50) in length; intestinal caecum 2.14 (1.60-2.60) long; ventriculus 0.24 (0.20-0.32) long; ventricular appendix 0.69 (0.60-0.80) long. Spicules equal measuring 4.13 (3.50-4.50). Tail bearing 25-31 pairs of subventral precloacal papillae and 7 pairs of postcloacal papillae. Distance from anus to posterior extremity 0.17 (0.15-0.20).

Female (based on 5 specimens): Body 33.52 (28.45-39.47) in length and 1.08 (0.82-1.30) maximum wide. Nerve ring 0.60 (0.46-0.70) from anterior end. Esophagus 3.98 (3.35 - 4.47) in length; intestinal caecum 3.07 (2.80-3.40) long; ventriculus 0.20 (0.15-0.25) long; ventricular appendix 0.89 (0.80-1.05) long. Vulva in anterior half of body, distanced 8.77 (7.42-11.32) from anterior end. Eggs with 0.063 x 0.053 (0.057-0.067 x 0.050-0.057). Distance from anus to posterior extremity 0.52 (0.47-0.57).

Seuratia shipleyi (Stossich, 1900) (Figure 2)

Host: *Calonectris borealis* (new host record).

Site: buccal cavity and oesophagus.

Locality: Linhares, Espírito Santo State, Brazil.

Material deposited in the CHIOC n° 38.378.

Male (based on 1 specimen): Body length 12.95. Maximum body width 0.25. Anterior region bearing a hood measuring 0.087 x 0.150. Spines' hood 0.0025 to 0.0270 in length. Vestibule 0.14 x 0.02. Lateral tricuspid spines with 0.050 in length, situated at 0.12 from anterior region. Oesophagus divided into a muscular region with 0.55 in length and a glandular region with 4.49 in length. Lateral rows of spines beginning 0.17 from anterior extremity. Nerve ring and excretory pore not observed. Spicules unequal; 0.22 and 1.07. Distance from cloaca to posterior extremity 0.30. Tail bearing 9 pairs of papillae; 4 precloacal pairs and 5 postcloacal pairs.

Female (based on 1 specimen): Body length 24.80. Maximum body width 0.50. Anterior region bearing a hood measuring 0.09 x 0.16. Spines' hood 0.005 to 0.030 in length. Vestibule 0.17 x 0.03.

Lateral tricuspid spines with 0.062 in length, situated at 0.12 from anterior region. Oesophagus not evidenced. Lateral rows of spines beginning 0.19 from anterior extremity. Nerve ring and

excretory pore not observed. Vulva 11.50 distance from posterior extremity. Eggs with 0.037-0.042 long and 0.017-0.020 wide. Distance from anus to posterior extremity 0.07.

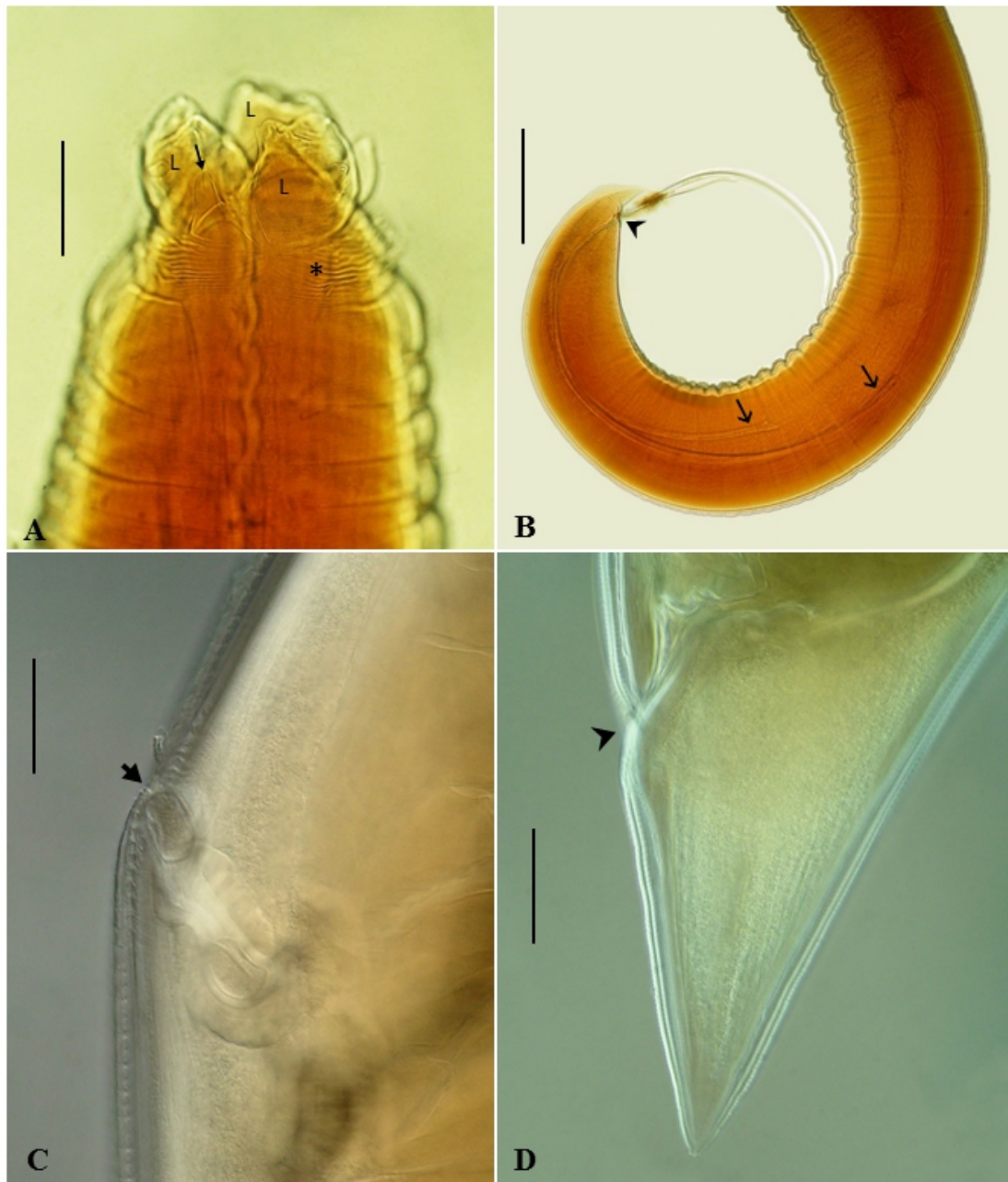


Figure 1. *Contracaecum pelagicum* observed by light microscopy micrographs. A) Anterior end of female, showing three lips (L), bifurcated interlabia (arrow) and conspicuous cephalic collar (asterisk) (scale bar: 0.12 mm). B) Lateral view of the male posterior region showing two pairs of spicules (thin arrow) leaving the anus (arrow head) (scale bar: 0.56 mm). C) Egg leaving vulva (arrow) observed by differential interference contrast (DIC) (scale bar: 0.11 mm). D) Lateral view of the female posterior region, showing anus (arrowhead), observed by differential interference contrast (DIC) (scale bar: 0.13 mm).

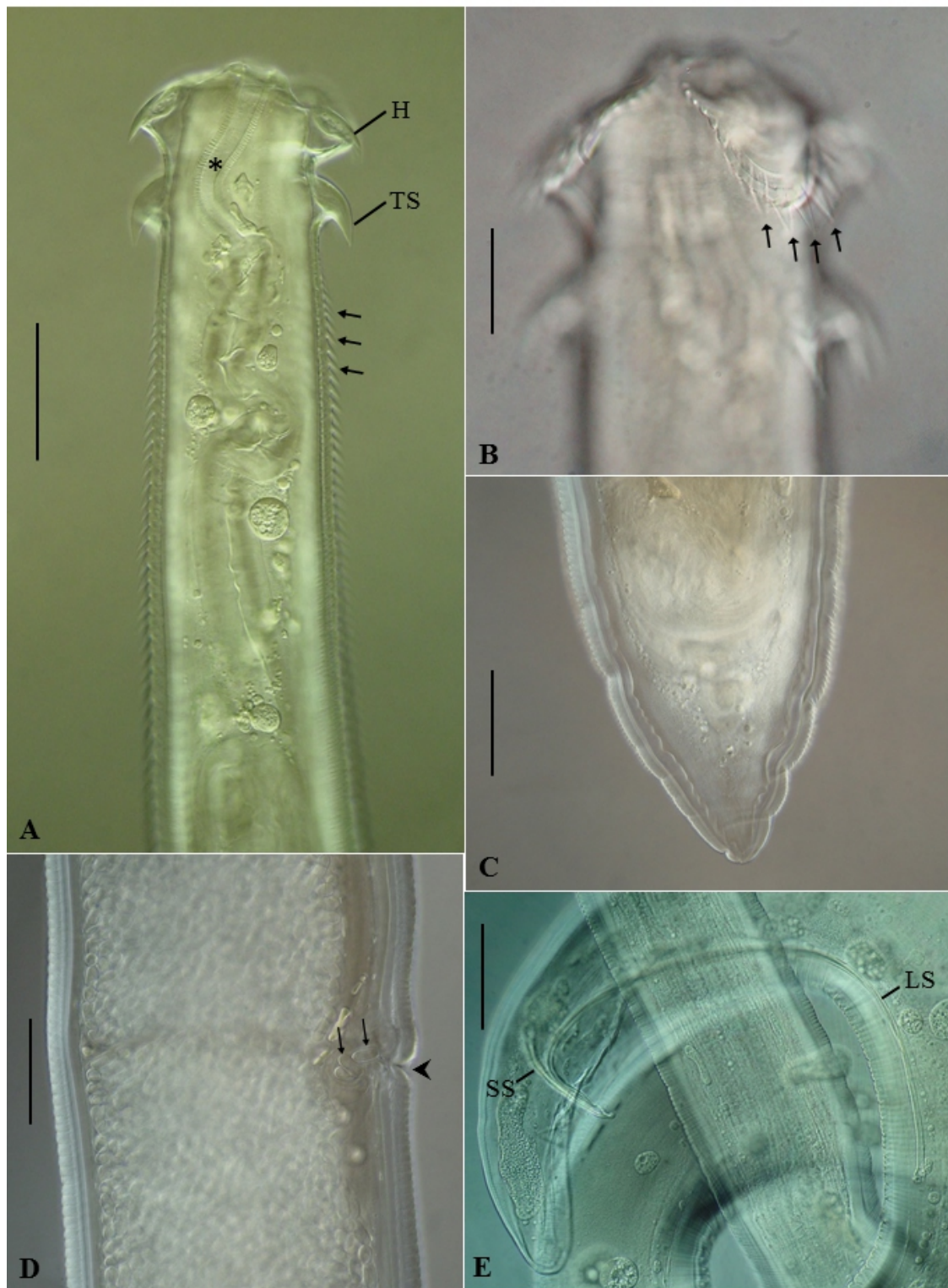


Figure 2. *Seurattia shipleyi* observed by differential interference contrast (DIC). A) Anterior region of female bearing a hood (H), a vestibule (asterisk), lateral tricuspid spines (TS) and lateral rows of spines (thin arrows) (scale bar: 0.1mm). B) Anterior region showing spines' hood (arrows) (scale bar: 0.05 mm). C) posterior region of female (scale bar: 0.05 mm). D) Vulvar region, showing vulva (arrow head) and eggs (thin arrow) (scale bar: 0.17 mm). E) Lateral view of the posterior region of male, showing the smaller spicule (SS) and the larger spicule (LS) (scale bar: 0.22 mm).

DISCUSSION

Contraecum pelagicum was described for the first time from the black-browed albatross *Talassarche melanophris* (Temminck, 1828) (= *Diomedea melanophris*) (Aves, Diomedidae) in Australia (Johnston & Mawson, 1942). Lent & Freitas (1948) redescribed this species from the type-host from Uruguay reporting this species for the first time in South America. In Brazil, *C. pelagicum* was reported in *Spheniscus magellanicus* (Forster, 1781) (Aves, Spheniscidae) by Santos (1984), Ederlil *et al.* (2009) and Campos *et al.* (2013) and referred in *Sula leucogaster* Boddaert, 1783 (Aves, Sulidae) by Silva *et al.* (2005). In Argentina, it was redescribed in *S. magellanicus* (Garbin *et al.*, 2007, 2013; Diaz *et al.*, 2010), in *Talassarche melanophris* (= *Diomedea melanophris*) (type-host) by Garbin *et al.* (2007), and in *Phalacrocorax atriceps* King, 1828 (Garbin *et al.*, 2013). From Chile, this species had been reported from *Spheniscus humboldti* Meyen, 1834 and *S. magellanicus* by González-Acuña *et al.* (2008) and from the former by Yáñez *et al.* (2012).

Seuratia shipleyi had been described from different hosts from Western Pacific, Russia, Australia and Africa (after Mendonça & Rodrigues, 1968), Netherlands (Borgsteede & Jansen, 1980), New Caledonia (Vassart & Melina, 1988) and from Spain (Alvarez-Mascato *et al.*, 1989). In South America, it was referred from Brazil in *T. melanophris* (= *D. melanophris*) from Rio de Janeiro State (Mendonça & Rodrigues, 1968) and in *Puffinus puffinus* (Brünnich, 1764) by Melo *et al.* (2012) from Paraíba State, and in Chile parasitizing *Pterodroma externa* (Salvin, 1875) (Diaz *et al.*, 2007).

In the present paper *C. pelagicum* and *S. shipleyi* are presented in *C. borealis* which represents the first record for these nematodes parasitizing this host, contributing for the knowledge of the Brazilian biodiversity.

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