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Presence of predatory nematode (Nematoda, Mononchidae) in a Wilson's storm petrel nest, *Oceanites oceanicus* (Ave, Procellariiformes, Hydrobatidae), in Southern Shetland Islands, Antarctica

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Abstract

The discovery of a mononchid nematode in the Argentinean Antarctic turns out to be a first citation of this predatory nematode in a Wilson's storm petrel nest. In that nest there were dead young petrels that we deduced full of bacteria, the bacteriophage nematodes went to the nest to feed in the cadavers and were followed by their predatory nematodes. We found a free soil predatory nematode *Coomansus jairajpuri* (Nematoda, Mononchida) in a Wilson's storm petrel nest, *Oceanites oceanicus* (Ave, Procellariiformes, Hydrobatidae), in Southern Shetland Islands, Antarctica. Working on reproductive biology of this bird and during the analysis of the material used for the construction of the nest, we observed, on January of 2011, the presence of specimens of free living nematodes. The nematode specimens were fixed in 4 parts 40% formalin and then put in TAF pure. We can diagnose our species that differed from the others by having the dorsal tooth apex at 75% of buccal cavity length from its base and has 14 supplements, most of them mammiliform and few are low mounds. We are waiting for a new campaign to the Argentinean antarctic to find more nematodes to identify the species; we need more number of specimens to describe this species as we suspect it is a new one.

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Introduction

The discovery of a mononchid nematode in the Argentinean Antarctic turns out to be a first citation of this predatory nematode in a Wilson's storm petrel nest. In that nest there were dead young petrels that we deduced full of bacteria, the bacteriophage nematodes went to the nest to feed in the cadavers and were followed by their predatory nematodes. The Mononchida is a group of predatory nematodes that called “tigers of the soil”, they feed on soil microorganisms including plant parasitic nematodes. The populations of plant parasitic nematodes in the soil are reduced due to his constant association with plant parasitic nematodes, and also release nutrients available to plants, which can allow plants to better withstand load nematodes in the roots (Ahmad and Jairajpuri, 2010). At present nineteen species of the genus *Coomansus Jairajpuri* and Khan, 1977 are described, but only seven species are known from the Antarctic and Subantarctic Terrirories and New Zealand Islands:, *C. campbelli* (Allgén, 1929) Jairajpuri and Khan, 1977; *C. composticola* (Clark, 1960) Jairajpuri and Khan, 1977; *C. gerlachei* (de Man, 1904) Jairajpuri and Khan, 1977; *C. intestinus* (Vinciguerra & La Rosa, 1990) Andrassy, 1993; *C. magellanicus* Jiménez Guirado *et al.*, 1998; *C. meridionalis* Jiménez Guirado *et al.*, 1998; and *C. mesadenus* (Clark, 1960) Jairajpuri & Khan, 1977. These species were studied by Loof and Winiszewska-Slipinska (1993) and Andrassy (1993) who gave dichotomous keys for all large *Coomansus* species with the dorsal tooth located in the anterior half of the buccal cavity.

This nematode was found in a Wilson's storm petrel nest, *Oceanites oceanicus* Kuhl, 1820 (Ave, Procellariiformes, Hydrobatidae) (Carboneras, 1992), which nest in caves or cracks formed between rocks, in most cases nests are not visible, may be located up to one meter deep, having one or more entrances (Fig. 1).

In this paper we describe the morphology of a predatory nematode belong to the genus *Coomansus* Jairajpuri and Khan, 1977 (Nematoda, Mononchidae) in a Wilson's storm petrel nest in Southern Shetland Islands, Antarctica.

Materials and methods

The study material was located in Potter Peninsula (62°14’S 58°38’W), southwest of King George Island (25 de Mayo Island), archipelago of the Southern Shetland Islands (Fig. 2). Covers an approximate area of 20 km2, where is the Argentine Scientific Base Carlini (ex Base "Jubany").

The geological composition of the area comprises a stratiform volcanic geological succession from the Late Eocene and Quaternary sediments that include Neoglacial and marine deposits (Fourcade, 1960; Birkenmajer, 1998). From a geomorphological point of view it presents three well-defined units: a plateau, andesitic outcrops and ancient levels of beaches (Fig. 3).

This area was assigned by SCAR (Scientific Committee of Antarctic Research) as Specially Protected Antarctic Zone 132 (ASPA 132) for its abundant bird and mammal fauna, with a large Wilson's storm petrel *O. oceanicus,* colony of 1,500 couples (Aguirre, 1995). Working on reproductive biology of this bird and during the analysis of the material used for the construction of the nest (mosses and lichens), we observed, on January of 2011, the presence of specimens of free living nematodes.

The nematode specimens were fixed in 4 parts 40% formalin and then put in TAF pure (trietanolamina, formalin, distilled water) following Poinar, 1975. Preserved specimens were observed under different magnifications with an Olympus BX-51 trinocular light and photographied. To identify the genus we used the Key of the genus of Mononchida, by Zullini and Peneva, 2006, and the species the Key to species of *Coomansus Jairajpuri* and Khan, 1977, by Ahmad and Jairajpuri, 2010. Material deposited (2 males, 1 female) in Museo de La Plata Helminthological Colection.

Results

Coomansus sp.

Body 3.5 mm long. Buccal cavity barrel-shaped, mostly as long as labial diam. Dorsal tooth of medium size, situated in anterior half or middle of buccal cavity, its apex at 75% of buccal cavity length from its

base. Buccal cavity 50 µm long, Buccal cavity barrel-shaped, narrow at base, >50 µm long. Dorsal wall of buccal cavity either not or only barely arched near tooth, both parts nearly equalin diameter (Fig. 4). Longitudinal ridge opposite to dorsal tooth generally present but rather weak, gradually merging anteriorly into ventral wall. Pharyngo-intestinal junction non-tuberculate.

Table 1. Measurements of female and male of *Coomansus* sp.

	♀	♂
Total length of body	3.0 mm	3.5 mm
a	32 µm	35 µm
b	5.2 µm	4.4 µm
c	15 µm	20 µm
c´	3 µm	---
V	75%	---
Maximum body diameter	100 µm	98 µm
Head diameter	44 µm	43.7 µm
Buccal cavity length	50 µm	49.6 µm
Buccal cavity diameter	27 µm	26 µm
Dorsal tooth apex	75 µm	75 µm
Distance nerve ring at anterior end	210 µm	212 µm
Distance excretory pore to anterior end	230 µm	220 µm
Pharynx length	490 µm	470 µm
Vagina length	70 µm	---
Tai appendage	190 µm	140 µm
Spicules	---	148 µm
Gubernaculum	---	38 µm
Supplements	---	14 µm

Fig. 1. Wilson's storm petrel nest, *Oceanites oceanicus* Kuhl, 1820.

Female genital system amphidelphic, vulva at 60 % of body length. Spicules comparatively short, supplements 14 in number (Fig. 5). Tail conoid, ventrally arcuate, 3 anal body diam. long in male, somewhat shorter than female. Caudal glands poorly developed, terminal duct or spinneret absent (Fig. 6).

Locality: living in petrel nest in Peninsula Potter, 25 de Mayo Island, Southern Shetland Islands, Antarctica.

Discussion

Currently the genus *Coomansus* has nineteen species valid, which only seven belong to Antarctic and Subantarctic territories and New Zealand Islands: *C. campbelli* (Allgén, 1929) Jairajpuri and Khan, 1977; *C. composticola* (Clark, 1960) Jairajpuri and Khan, 1977; *C. gerlachei* (de Man, 1904) Jairajpuri and Khan, 1977; *C. intestinus* (Vinciguerra and La Rosa, 1990) Andrássy, 1993; *C. magellanicus* Jiménez-Guirado, Wouts and Bell, 1998; *C. meridionalis* Jiménez-Guirado, Wouts and Bello, 1998; *C. mesadenus* (Clark, 1960) Jairajpuri and Khan, 1977.

Fig. 2. Geographic location map.

Fig. 3. View of the plateau, andesitic outcrops.

Only two species of this group *C. gerlachei* and *C. intestinus* occur at high latitudes like Antarctica, being widespread over Antarctic Islands, the shared mainly the presence of intestinal constrictions. *C. gerlachei* can be distinguished by the dorsal tooth obtuse, apex 82 % of buccal cavity length from its base, buccal cavity walls thick, and has supplements 9 to 11 mammiliform; and *C. intestinus* separated by the dorsal tooth apex at 80-83 % of buccal cavity length from its base, and supplements in number 7 to 8.

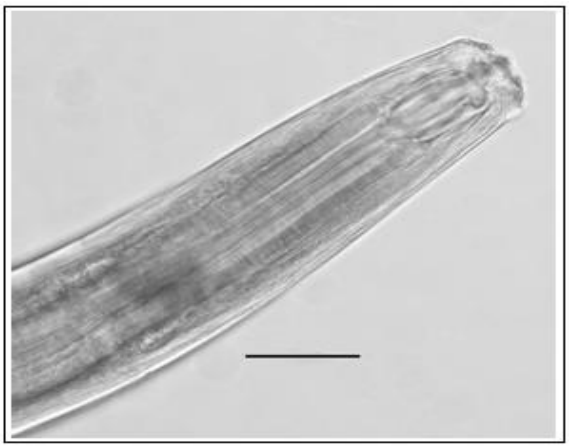

Fig. 4. Anterior end of male. Bar = 50 µm.

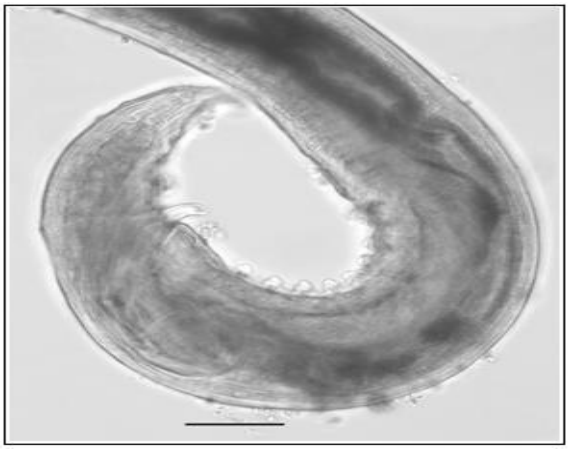

Fig. 5. Posterior end of male. Bar = 50 µm.

We can diagnose our species that differed from the others by having the dorsal tooth apex at 75% of buccal cavity length from its base and has 14 supplements, most of them mammiliform and few are low mounds.

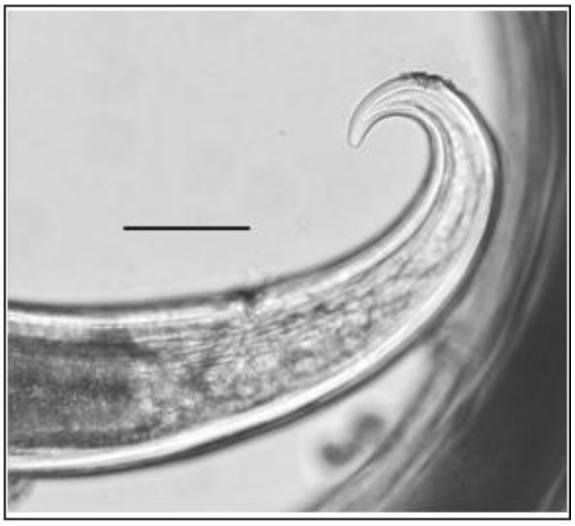

Fig. 6. Posterior end of female. Bar = 50 µm.

We are waiting for a new campaign to the Argentinean antarctic to find more nematodes to identify the species; we need more number of specimens to describe this species as we suspect it is a new one.

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