

## SCIENTIFIC COMMUNICATION

### Helminths parasites of whales in Brazil

Luis C. Muniz-Pereira 1, 2  
Joaquim Júlio Vicente 1, 3  
Dely Noronha 1

**ABSTRACT.** Three species of whale *Balaenoptera borealis* Lesson, 1828, *B. physalus* (Linnaeus, 1758) and *Physeter catodon* Linnaeus, 1758 captured in the Brazilian coast were necropsied for helminths. *Balaenoptera borealis* and *B. physalus* were infected by *Crassicauda crassicauda* (Nematoda, Tetrameridae) and *Ogmogaster antarcticus* (Digenea:Notocotylidae), which are referred for the first time in Brazil. *Balaenoptera borealis* was also infected by *Lecithodesmus goliath* (Digenea, Campulidae) and *Bolbosoma turbinella* (Acanthocephala, Polymorphidae). *Physeter catodon* was infected by *Anisakis physeteris* (Nematoda, Anisakidae), which is a new record to this host in Brazilian waters.

**KEY WORDS.** Helminths, new records, whale, Brazil

During the years of 1960 to 1962 whales from Brazilian coast were examined for helminths. All the whales were killed by commercial whalers (Taiyo Co.) operating at Arraial do Cabo county, State of Rio de Janeiro. Three species of whales, *Balaenoptera borealis* Lesson, 1828, *B. physalus* (Linnaeus, 1758) and *Physeter catodon* Linnaeus, 1758 were parasitized with helminths. With this note *Ogmogaster antarcticus* Johnston, 1931, *Crassicauda crassicauda* (Creplin, 1829) Leiper & Atkinson, 1915 are reported for the first time in Brazil, and *Anisakis physeteris* Baylis, 1923 is registered for the first time in *P. catodon* in Brazilian waters, adding new to those of VICENTE *et al.* (1997).

One hundred and thirty-five samples of helminths collected from whales and deposited in the Helminthological Collection of the Instituto Oswaldo Cruz (CHIOC) were studied. Some of the samples were preserved as whole mounts and other as wet material in Railliet & Henry solution (0.85 % NaCl solution: 93 ml; formaldehyde: 5 ml; glacial acetic acid: 2 ml). The latter were processed for study according to procedures referred elsewhere, digeneans MUNIZ-PEREIRA & AMATO (1995), nematodes VICENTE *et al.* (1993) and acanthocephalans MACHADO-FILHO (1964).

Digenea Van Beneden, 1858

Campulidae Odhner, 1926

*Lecithodesmus goliath* (Beneden, 1858) Odhner, 1905

Host: *B. borealis* – sei whale.

Site of infection: liver.

Specimens studied: CHIOC no. 27224 a-f, 27225, 27226 a-c (*B. borealis*).

1) Laboratório de Helmintos Parasitos de Vertebrados, Departamento de Helminologia, Instituto Oswaldo Cruz. 21045-900 Rio de Janeiro, Rio de Janeiro, Brasil.

2) E-mail: lmuniz@netgate.com.br

3) Researcher CNPq.

References: TRAVASSOS *et al.* (1962, 1969).

Remarks: this species was described and figured by TRAVASSOS *et al.* (1969), and the present data are in agreement with those previously reported for *L. goliath*.

#### Notocotyliidae Lühe, 1909

##### *Ogmogaster antarcticus* Johnston, 1931

Hosts: *B. borealis* – sei whale, *B. physalus* – fin whale.

Site of infection: intestine, rectum.

Specimens studied: CHIOC no. 33974a-c, 33975a-c (*B. borealis*).

References: RAUSCH & FAY (1966), PRICE (1932).

Remarks: this is the first report of this species in Brazil. This species is closely related to *O. plicatus* (Creplin, 1829), differing in some characters like the number of the ventral ridges that in *O. antarcticus* is 11 to 17 and in *O. plicatus* 19 to 28; thirty to forty external folds in *O. antarcticus* compared to more than 40 in *O. plicatus*; the extension of the cirrus pouch that in *O. plicatus* reaches the posterior half of the body while in *O. antarcticus* it is restricted to the anterior portion. As observed in our specimens two characters must be related to inter-specific variations, the space occupied by the vitelline glands between the base of the cirrus pouch to the testis and the extension of the pars prostatica in relation of the length of the cirrus pouch. Additional data on *O. antarcticus* are in table I.

Table I. Character measurements for specimens (n=6) of *Ogmogaster antarcticus*.

Characters	Range (mm)	Mean (mm)
Body length	6.970 – 8.500	7.770
Body width	2.790 – 3.400	3.090
Oral sucker diameter	0.504 – 0.756	0.631
Cirrus pouch length	2.550 – 3.130	2.850
Metraterm length	0.812 – 1.050	0.962
Egg length	0.018 – 0.022	0.020
Egg width	0.007 – 0.011	0.010
Egg filament length	0.090 – 0.111	0.101

#### Nematoda Rudolphi, 1808

##### Anisakidae Skrjabin & Karokhin, 1945

##### *Anisakis physeteris* Baylis, 1923

Host: *Physeter catodon* – sperm whale.

Site of infection: stomach.

Specimens studied: CHIOC no. 29602, 29603, 29665-29667, 29668-29670, 29691 (*P. catodon*).

References: MOZGOVOI (1953), SANTOS & LODI (1998).

Remarks: this is the first report of this species in *P. catodon* in Brazil. The specific identification was based mainly on the length of the spicules (0,4 mm) that differs from the other species of the genus *Anisakis* referred and illustrated by MOZGOVOI (1953) and DAVEY (1971). SANTOS & LODI (1998) registered this species for the first time in Brazil.

## Tetrameridae Travassos, 1914

*Crassicauda crassicauda* (Creplin, 1829) Leiper & Atkinson, 1915

Host: *B. borealis* – sei whale, *B. physalus* B fin whale.

Site of infection: penis, urethra, and intestine.

Specimens studied: CHIOC no. 29663, 29664, 29674, 29676-29678, 29695, 29672 (*B. borealis*).

References: BAYLIS (1929, 1932), SKRJABIN *et al.* (1967).

Remarks: this is the first report of this species in Brazil. This species were figured and described by BAYLIS (1929, 1932) and SKRJABIN *et al.* (1967). Additional data on *C. crassicauda* are in table II.

Table II. Character measurements for specimens (n=4) of *Crassicauda crassicauda*.

Characters	Male (mm)	Female (mm)
Body length	900 – 1000	1200 – 1500
Body width (smallest width)	0.300 – 0.370	0.370 – 0.400
Muscular oesophagus	–	1.540
Glandular oesophagus	–	23.460
Nerve ring diameter	–	0.560
Buccal capsule length	0.110	0.150
Buccal capsule width	0.056	0.072
Spicule (bigger)	0.570 – 0.720	–
Spicule (shorter)	0.280 – 0.290	–
Distance from Vulva to posterior extremity		2.210 – 2.340
Eggs (length)		0.036 – 0.039
Eggs (width)		0.025 – 0.028
Anus		0.440 – 0.580
Cloaca	0.560 – 0.700	

## Acanthocephala Rudolphi, 1808

## Polymorphidae Meyer, 1931

*Bolbosoma turbinella* (Diesing, 1851) Porta, 1908

Host: *B. borealis* – sei whale.

Site of infection: intestine.

Specimens studied: CHIOC no. 29626, 29639, 29640, 29836 (*B. borealis*).

References: MACHADO-FILHO (1964).

Remarks: MACHADO-FILHO (1964) described and figured specimens of *B. turbinella* erecting in this work a new subfamily Bolbosomatinae. This subfamily was not referred by AMIN (1985, 1987).

## REFERENCES

- AMIN, O. 1985. Classification, p.27-72. In: D.W.T. CROMPTON & B.B. NICKOL (Eds). **Biology of the Acanthocephala**. London, Cambridge University Press, 519p.
- . 1987. Key to the families and subfamilies of Acanthocephala, with erection of a new class (Polyacanthocephala) and a new order (Polyacanthorhynchida). **Jour. Parasitol.** **73** (6): 1216-1219.
- BAYLIS, H.A. 1929. Parasitic Nematoda and Acanthocephala collected in 1925-1927. **Disc. Rep.** **1**: 541-560.
- . 1932. A list of worms parasitic in Cetacea. **Disc. Rep.** **6**: 393-418.
- DAVEY, J.T. 1971. A revision of the genus *Anisakis* Dujardin, 1845 (Nematoda: Ascaridata). **Jour. Helminthol.** **45** (1): 51-72.
- MACHADO-FILHO, D.A. 1964. Contribuição ao conhecimento do gênero *Bolbosoma* Porta, 1908 (Palaeacanthocephala, Polymorphidae). **Rev. Brasil. Biol.** **24** (3): 341-348.
- MOZGOVOI, A.A. 1953. Ascaridata from animals and man and diseases caused by them II, p.1-616. In: K.I. SKRJABIN (Ed.). **Principles of nematodology II**. Moscow, Akad. Nauk. SSSR Ed., 616p.
- MUNIZ-PEREIRA, L.C. & S. AMATO. 1995. Natural hosts of *Notocotylus breviserialis* (Digenea, Notocotylidae) parasites of Brazilian waterfowl. **Mem. Inst. Oswaldo Cruz** **90**: 711-714.
- PRICE, E.W. 1932. The trematodes parasites of marine mammals. **Proc. U.S. Nat. Mus.** **81** (13): 1-68.
- RAUSCH, R.L. & F.H. FAY. 1966. Studies on the helminth fauna of Alaska. XLIV. Revision of *Ogmogaster* Jägerskiöld, 1891, with a description of *O. pentalineatus* sp.n. (Trematoda: Notocotylidae). **Jour. Parasitol.** **52** (1): 26-38.
- SANTOS, C.P. & L. LODI. 1998. Occurrence of *Anisakis physeteris* Baylis, 1923 and *Pseudoterranova* sp. (Nematoda) in Pygmy Sperm Whale *Kogia breviceps* (De Blainville, 1838) (Physeteridae) in Northeastern Coast of Brazil. **Mem. Inst. Oswaldo Cruz** **93** (2): 187-188.
- SKRJABIN, K.I.; A.A. SOBOLEV & V.M. IVASCHKIN. 1967. Spirurata from animals and man and diseases caused by them IV, p.1-624. In: K.I. SKRJABIN. **Treatise of nematodology XVI**. Moscow, Akad. Nauk. SSSR Ed., 624p.
- TRAVASSOS, L.; J.F.T. TEIXEIRA; J.M. MENDONÇA & H.O. RODRIGUES. 1962. Segunda excursão a Cabo Frio, Estado do Rio de Janeiro. **Atas Soc. Biol. Rio de Janeiro** **6** (4): 37-38.
- TRAVASSOS, L.; J.F.T. TEIXEIRA & A. KOHN. 1969. Trematódeos do Brasil. **Mem. Inst. Oswaldo Cruz** **67**: 1-886.
- VICENTE, J.J.; R.M. PINTO & D. NORONHA. 1993. Remarks on six species of heterakid nematodes parasites of Brazilian tinamid birds with a description of a new species. **Mem. Inst. Oswaldo Cruz** **88** (2): 271-278.
- VICENTE, J.J.; H.O. RODRIGUES; D.C.GOMES & R.M. PINTO. 1997. Nematóides do Brasil. Parte V: Nematóides de mamíferos. **Revta bras. Zool.** **14** (Supl. 1): 1-452.