

MARINE NEMATODA FROM AJURUTEUA BEACH, AMAZON COAST, BRAZIL

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RESUMO

Este estudo objetiva preencher uma lacuna do conhecimento sobre nematodeos no Brasil, fornecendo a primeira lista de gêneros de uma praia arenosa amazônica brasileira (Ajuruteua, Pará). As amostras foram coletadas em junho de 2009 ao longo de quatro transectos perpendiculares à linha da praia ao longo do médio litoral (supra, médio e infra), usando um amostrador cilíndrico de 3.14 cm², o qual foi enterrado até 10cm no sedimento. Um total de 17 famílias e 47 gêneros foi registrado. Entre as famílias Xyalidae foi a mais rica (11 gêneros) seguida por Chromadoridae (11 gêneros). Os táxons encontrados neste estudo são comuns em praias arenosas no mundo, tendo sido já registrados também na região costeira brasileira. *Trochamus*, *Neotonchus* e *Metadasynemella* foram registrados pela primeira vez em praias arenosas no Brasil. A maioria dos gêneros teve baixa frequência de ocorrência, sendo apenas *Chromadorita*, *Paracanthonchus*, *Monoposthia*, *Metadesmolaimus*, *Bathylaimus*, *Daptonema* e *Trichotheristus* comuns.

PALAVRAS-CHAVES: Nematoda, Praia arenosa, Pará, Região Amazonica.

ABSTRACT

This study aims to fill a gap in knowledge about nematodes in Brazil, providing the first list of nematodes genera from a Brazilian Amazon sandy beach (Ajuruteua, Pará). Samples were collected in June 2009 along four transects perpendicular to the beach-line along the midlittoral (upper, middle and inferior), using a cylindrical sampler of 3.14 cm² which was buried to 10 cm depth in the sediment. A total of 17 families and 47 genera were recorded. Among families, Xyalidae was the richest (11 genera) followed by Chromadoridae (7 genera). The taxa found in this study are common on sandy beaches around the world have been also reported already for Brazilian coast. *Trochamus*, *Neotonchus* and *Metadasynemella* were recorded for the first time in sandy beaches of Brazil. Most genera had low frequency of occurrence with only *Chromadorita*, *Paracanthonchus*, *Monoposthia*, *Metadesmolaimus*, *Bathylaimus*, *Daptonema* and *Trichotheristus* being common.

KEY-WORDS: Nematoda, sandy beach, Pará, Amazon region.

Free-living nematodes are dominant marine and estuarine benthic metazoan occurring in coastal and offshore bottoms in densities that can reach several million individuals/m² (HIGGINS & THIEL, 1988). The ecological success of this group is related, among other factors, to the variety in mouth morphology that allows the use of numerous trophic resources (BOUWMAN, 1983).

The first record of marine nematodes in Brazil was performed by Cobb (1920) on the coast of Bahia, where three different species (*Alaimella truncata*, *Litotes minuta* and *Synonema brasiliense*) were identified. However, taxonomic studies on these organisms became effective only in the 50's through the works of Gerlach (1954, 1956a, 1956b, 1957a, 1957b), being such researches incorporated and consolidated only in the 90s of the twentieth century.

Until 2008, 11 orders, 59 families, 294 genera and 231 species of nematodes were registered in coastal regions of Brazil, with studies concentrated in the Northeast and Southeast regions (VENEKEY et al. 2010). Recently, it was also published descriptions of the first new species on beaches since the 50s (VENEKEY et al. 2005; MARIA et al. 2009) and even a new genus (FONSECA-GENEVOIS et al. 2009).

In this context, this study aims to fill a gap in knowledge about these organisms in Brazil, providing the first list of genera of nematodes in a sandy beach of the Brazilian Amazon region, considering that the taxonomic characterization is one of the basis for researches focusing on the structure and functioning of coastal ecosystems and its disruption due to natural or anthropogenic environmental changes.

The Ajuruteua beach (Fig. 1) is located in the northeastern of Pará state. It has an extensive flat area oriented in a NW-SE, approximately 2.5 km long and 300 m wide (SOUZA FILHO et al. 2003), low declivity, sliding-type surf zone, sediment composed of fine sand, classified as dissipative by Ahmed & Robrini (2006). The climate is hot and humid (temperature above 23 °C throughout the year) with dry season between July and December and a rainy season with heavy rainfall in other periods of the year (January-June) (MORAES et al., 2005).

Samples were collected in June 2009 along four transects perpendicular to the beach-line. Samples were taken along the midlittoral (upper, middle and inferior) using a cylindrical sampler of 3.14 cm² which was buried to 10 cm depth in the sediment. Samples were fixed in 5% saline formalin and stained with Rose Bengal.

In the laboratory, the organisms were separated from the sediment by manual elutriation and the supernatant was sieved through a mesh with 0.063 mm aperture. To study the taxonomic composition of nematodes, it has been used the techniques of De Grisse (1969) and Cobb (1917) for slides preparation, and the key of Warwick et al. (1998) for genera identification. For the frequency of occurrence and trophic groups were adopted the classifications of Bodin (1977) and Wieser (1953), respectively.

A total of 17 families and 47 genera were recorded (Table 1). Among families, Xyalidae was the richest (11 genera) followed by Chromadoridae (7 genera). Venekey et al. (2010) when compiling a taxonomic list with genera and species of marine and estuarine free-living nematodes reported for Brazil, cite that these families appear as the richest in genera, being such an outcome is expected since these are the most numerous taxonomically in terms of genera.

The genera found in this study are common on sandy beaches around the world (NICHOLAS & HODDER, 1999; HOURSTON et al., 2005) being also reported for Brazilian coast (VENEKEY, 2007). The genera *Trochamus*, *Neotonchus* and *Metadasynemella* were recorded for the first time in sandy beaches of Brazil.

Most genera had low frequency of occurrence with only *Chromadorita*, *Paracanthonus*, *Monoposthia*, *Metadesmolaimus*, *Bathylaimus*, *Daptonema* and *Trichotheistus* being common (Table 1). Heip et al. (1985) mention as common the high frequency of occurrence of a few genera in certain environments according to their particular features.

Concerning the trophic groups, there was a predominance of non-selective deposit feeders (1B) and epistrate feeders (2A), reflecting the dominance of the genera *Bathylaimus* (1B) and *Chromadorita* (2A) (Table 1). Alongi (1990) cites the dominance of epistrate feeders in the warmer months of the year due to the increased number of bacteria, protozoans and microphytobenthos in the sediments, while deposit feeders are more abundant during the rainy season when there is deposition of organic debris in the sediment, hence the dominance of groups 1B and 2A as the sampling was carried out in the end of the rainy season and early dry period.

Due to the lack of studies in the northern Brazilian coast about the Nematoda of sandy beach, it can not even be established whether the richness in Ajuruteua may be considered high or not, being therefore necessary more studies on these organisms in this region.

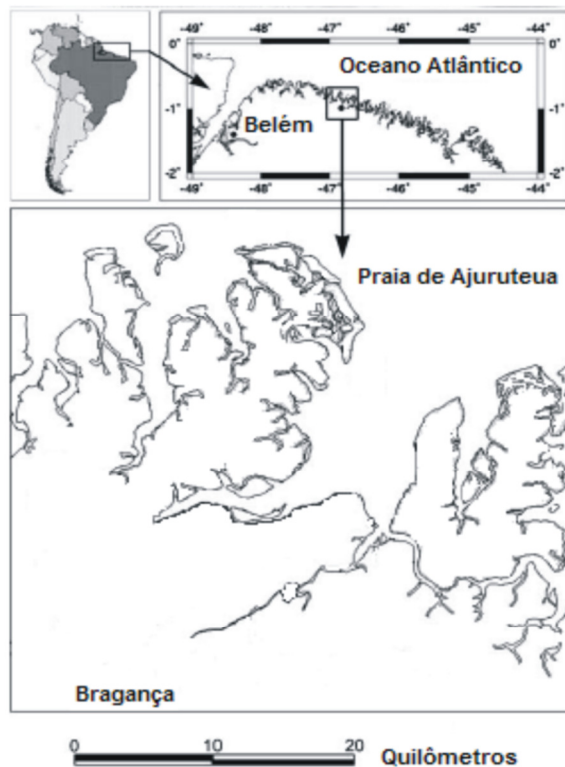


FIGURE 1 – Location of the study area, Ajuruteua sandy beach, Amazon coast, Brazil.

TABLE 1 – Taxonomic composition, frequency of occurrence and trophic classification (1A - selective deposit feeders; 1B - non-selective deposit feeders; 2A – epistrate feeders and 2B - predators) of the genera of free living nematodes recorded in the Ajuruteua sandy beach, Amazon coast, Brazil.

Families	Genera	Frequency	Trophic group
Anoplostomatidae	<i>Anoplostoma</i> Bütschli, 1874	Rare	1B
Axonolaimidae	<i>Ascolaimus</i> Ditlevsen, 1919	Rare	1B
	<i>Axonolaimus</i> de Man, 1889	Rare	1B
	<i>Odontophora</i> Bütschli, 1874	Rare	1B
Ceramoneematidae	<i>Ceramonema</i> Cobb, 1920	Rare	1A
	<i>Dasynemoides</i> Chitwood, 1936	Rare	1A
	<i>Metadasynemella</i> De Coninck, 1942	Rare	1A
	<i>Metadasynemoides</i> Haspeslagh, 1973	Rare	1A
	<i>Pselionema</i> Cobb, 1933	Rare	1A
Chromadoridae	<i>Chromadorita</i> Filipjev, 1922	Common	2A
	<i>Endeolophus</i> Boucher, 1976	Rare	2A
	<i>Neochromadora</i> Micoletzky, 1924	Rare	2A
	<i>Nygmatonchus</i> Cobb, 1933	Rare	2A
	<i>Parachromadorita</i> Blome, 1974	Rare	2A
	<i>Prochromadorella</i> Blome, 1974	Rare	2A
	<i>Trochamus</i> Boucher e Bovée, 1972	Rare	2A
Cyatholaimidae	<i>Paracanthonchus</i> Micoletzky, 1924	Common	2A
Desmodoridae	<i>Desmodora</i> De Man, 1889	Rare	2A
	<i>Metachromadora</i> Filipjev, 1918	Rare	2A
	<i>Polysigma</i> Cobb, 1920	Rare	2B
Ethmolaimidae	<i>Neotonchus</i> Cobb, 1933	Rare	2A
Ironidae	<i>Syringolaimus</i> de Man, 1888	Rare	2A
	<i>Thalassironus</i> de Man, 1889	Rare	2A
	<i>Trissonchulus</i> Cobb, 1920	Rare	2A
Microlaimidae	<i>Microlaimus</i> De Man, 1880	Rare	2A
Monoposthidae	<i>Monoposthia</i> de Man, 1889	Common	2A
	<i>Nudora</i> Cobb, 1920	Rare	2A
	<i>Rhinema</i> Cobb, 1920	Rare	2A
Oncholaimidae	<i>Metoncholaimus</i> Filipjev, 1918	Rare	2B
	<i>Oncholaimus</i> Dujardin, 1845	Rare	2B
	<i>Viscosia</i> de Man, 1890	Rare	2B
Oxystominidae	<i>Oxystomina</i> Filipjev, 1921	Rare	1A
Selachinematidae	<i>Latronema</i> Wieser, 1954	Rare	2B
Tarvaidae	<i>Tarvaia</i> Allgén, 1934	Rare	1A
Thoracostomopsidae	<i>Mesacanthion</i> Filipjev, 1927	Rare	2B
Tripyloididae	<i>Bathylaimus</i> Cobb, 1894	Common	1B
Xyalidae	<i>Daptonema</i> Cobb, 1920	Common	1B
	<i>Gonionchus</i> Cobb, 1920	Rare	1B
	<i>Metadesmolaimus</i> Stekhoven, 1935	Common	1B
	<i>Omicronema</i> Cobb, 1920	Rare	1B
	<i>Prorhynchonema</i> Gourbault, 1982	Rare	1B
	<i>Pseudosteineria</i> Wieser, 1956	Rare	1B
	<i>Rhynchonema</i> Cobb, 1920	Rare	1B
	<i>Theristus</i> Bastian, 1865	Rare	1B
	<i>Trichotheristus</i> Wieser, 1956	Common	1B
	<i>Xenolaimus</i> Cobb, 1920	Rare	1B
	<i>Xyala</i> Cobb, 1920	Rare	1B

ACKNOWLEDGMENTS

To the Project "Use and Appropriation of Coastal Resources/Millennium RECOs (CNPq/PADCT/MCT)", Thematic Group: Modeling, Management, Erosion and Coastal Occupation (MM & OC), in which the study was conducted. To the Institutional Program for Scientific Initiation Scholarships (PIBIC/UFPA) for the first author' Scientific Initiation scholarship during this work.

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