

Nematode Parasites of Brazilian Ciconiiformes Birds: a General Survey with New Records for the Species

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This report deals with the identification of one hundred and fifty-nine samples of nematodes recovered from Brazilian egrets and herons. Contraecaecum microcephalum, C. multipapillatum, C. plagiaticium, Desportesius invaginatus, D. longevaginatus, Desmidocercella ardeae, Eustrongylides ignotus, Porrocaecum reticulatum, Tetrameres micropenis, Capillaria sp., Contraecaecum sp., Porrocaecum sp., Procyrnea sp., Tetrameres sp. and Viktorocara sp. were studied. The genus Viktorocara and the species C. microcephalum, C. plagiaticium, D. invaginatus, D. ardeae and P. reticulatum are referred in Brazil for the first time.

Key words: nematodes - Ciconiiformes - birds - new records - Brazil

The present investigation refers to the nematodes recovered from egrets and herons. These hosts generally inhabit tropical environments; some species have been listed among those endangered of extinction and were captured during early institutional scientific expeditions to the Brazilian hinterlands, mostly in the first half of this century, generally conducted by Dr Lauro Travassos and Dr JF Teixeira de Freitas.

MATERIALS AND METHODS

One hundred and fifty-nine samples recovered between 1921 and 1961 in Brazilian north, southeastern and mid-eastern regions and deposited in the Helminthological Collection of the Oswaldo Cruz Institute (CHIOC) were studied. Specimens are kept in numbered vials, matched with respective numbered files that contain data on the unidentified samples, regarding host, site of infection, locality of capture, preservative solution, date of necropsy and name of the collector. The source of samples according to host family is: ARDEIDAE: 27 from *Ardea cocoi* L.; 21 from *Butorides s. striatus* (L.); 7 from *Casmerodius albus egretta* (Gmelin); 9 from *Egretta t. thula* (Molina); 2 from *Ixobrychus exilis erythromelas* (Vieillot); 2 from *Nyctanassa violacea cayennensis* (Gmelin); 38 from *Nycticorax nycticorax hoactli* (Gmelin); 4 from *Pilherodius pileatus* (Boddaert); 2 from *Syrigma sibilatrix* (Temminck); 14 from *Tigrisoma lineatum marmoratum* (Vieillot); 3 from *Tigrisoma* sp. CI-

CONIIDAE: 13 from *Euxenura maguari* (Gmelin); 1 from *Jabiru mycteria* (Lichtenstein); 5 from *Mycteria americana* L.; COCHLEARIIDAE: 7 from *Cochlearius C. cochlearius* (L.); THRESKIORNITHIDAE: 1 from *Phimosus infuscatus nudifrons* (Spix); 3 from *Theristicus c. caudatus* (Boddaert).

Nematodes were preserved in Railliet & Henry solution, (0.85% NaCl solution: 93 ml; formaldehyde: 5 ml; glacial acetic acid: 2 ml) and were processed for study as described elsewhere (Vicente et al. 1993). NHR and NGD indicate New Host Record and New Geographical Distribution, respectively. Classification and common names of hosts follow Pinto (1978) and Sick (1984). Confirmation of the taxonomic status of the nematodes was based on Hartwich (1974), Chabaud (1975), Anderson and Bain (1976, 1982). Specific diagnosis was achieved by comparison of the morphometric data actually obtained with those referred in the original descriptions and/or redescrptions, as well as with deposited type specimens whenever available in the CHIOC.

RESULTS

Eustrongylides ignotus Jagerskiold, 1909
(Dioctophymatoidea, Dioctophymatidae,
Eustrongylinae)

Host: *Euxenura maguari* - NHR
Other hosts were listed by Rêgo and Vicente (1988).

Site of infection: gizzard.

Locality: Barranco Alto, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no. 33180a-b, 33181a-b (whole mounts).

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Contracaecum microcephalum (Rudolphi, 1819)
Baylis, 1920
(Ascaridoidea, Anisakidae, Anisakinae)
(Fig. 1 k)

Hosts: *Butorides s. striatus* (L.); common name: striated heron ("socózinho, maria-mole, anavelha, João-Manuel") - NHR; *Casmerodius albus egretta* (Gmelin) (= *Ardea egretta*); common name: great egret ("garça branca grande, guiratinga") - NHR; *Egretta t. thula* (Molina) (= *Leucophoyx t. thula*); common name: snowy egret ("garça branca pequena") - NHR.

Site of infection: intestine.

Localities: State of Amazonas, Angra dos Reis, State of Rio de Janeiro, Marajó Island, State of Pará, Porto Cabral, State of São Paulo, Salobra, State of Mato Grosso do Sul, Brazil - NGD.

Specimens studied: CHIOC no. 33162a-f, 33163a-b (whole mounts); 9456, 11785, 14698, 14976, 15038, 18007, 21174 (wet material).

Although reported from a wide range of hosts, with a large geographical distribution (Cram 1927) this is the first record of *C. microcephalum* in South America.

Contracaecum multipapillatum (Drasche, 1882)
Baylis, 1920

Hosts: *Ardea cocoi* L.; common name: white-necked heron ("maguari, baguari, socó-grande") - NHR; *Cochlearius c. cochlearius* (L.) (= *Cancroma cochlearia*); common name: boat-billed heron ("tamatiá, tamatião"); *Nycticorax nycticorax hoactli* (Gmelin); common name: heron ("guacuru, socó dorminhoco, taiaçu, taquiri") - NHR.

Site of infection: intestine.

Localities: State of Mato Grosso do Sul, Angra dos Reis, State of Rio de Janeiro, Brazil.

Specimens studied: CHIOC no. 33157a-i, 33158a-b, 33159a-b (whole mounts); 8318, 12979, 13021, 13022, 14189, 14448, 14458, 15036, 15585 (wet material).

Contracaecum plagiaticium Lent & Freitas,
1948
(Fig. 1 c, d)

Hosts: *Nycticorax nycticorax hoactli* - NHR; *Pilherodius pileatus* (Boddaert); common name: capped heron ("garça real") - NHR.

Site of infection: stomach (?).

Localities: States of Mato Grosso do Sul and Rio de Janeiro, Brazil - NGD.

Specimens studied: CHIOC no. 33160a-f, 33161 (whole mounts); 8636, 12635 (wet material).

Contracaecum plagiaticium was described from Uruguay, parasitizing *Nycticorax nyctico-*

rax naevius (Boddaert) (Lent & Freitas 1948) and is referred for the first time in Brazil.

Porrocaecum reticulatum (Linstow, 1899)
Baylis & Daubney, 1922
(Ascaridoidea, Ascarididae, Toxocarinae)
(Fig. 1 i, j)

Hosts: *Ardea cocoi*; *Egretta t. thula* - NHR; *Casmerodius albus egretta* - NHR; *Nycticorax nycticorax hoactli*; *Tigrisoma lineatum marmoratum* (Vieillot); common name: rufescent tiger heron ("socó-boi, taiaçu") - NHR.

Localities: State of Mato Grosso do Sul, Marajó Island, State of Pará, Brazil - NGD.

Specimens studied: CHIOC no. 33164, 33165, 33166a-d, 33167a-b, 33168 (whole mounts); 9462, 11786, 12985, 15037, 15047, 15263, 18006, 26428 (wet material).

This is a very peculiar species, considering that the presence of an accessory piece in addition to the two spicules in an ascarid is highly remarkable (Baylis & Daubney 1922). This is the first report of *P. reticulatum* in South America.

Tetrameres micropenis Travassos, 1925
(Habronematoidea, Tetrameridae, Tetramerinae)

Host: *Nyctanassa violacea cayennensis* (Gmelin); common name: yellow-crowned night heron ("sabacu, tamatião, matirão").

Site of infection: gizzard.

Locality: Rio de Janeiro, State of Rio de Janeiro, Brazil.

Specimens studied: CHIOC no. 9860 (wet material).

Desportesius invaginatus (Linstow, 1901)
Chabaud & Campana, 1949
(Acuarioidea, Acuariidae, Acuariinae)
(Fig. 1 e, f)

Host: *Egretta t. thula* - NHR.

Site of infection: gizzard.

Localities: Manaus, State of Amazonas, Rio de Janeiro, State of Rio de Janeiro, Brazil - NGD.

Specimens studied: CHIOC no. 33170a-d, 33171a-d (whole mounts).

D. invaginatus has been reported from several ciconiiform hosts from Europe, Asia, Africa and USA (Wong & Anderson 1986). This is the first record of the species in South America.

Desportesius longevaginatus (Molin, 1860)
Wong & Anderson, 1986

Hosts: *Euxenura maguari* (Gmelin); common name: maguari stork ("baguari, cauauã, jaburu moleque, cegonha"); *Mycteria americana* L.; common name: stork ("passarão, cabeça seca, cabeça de pedra") - NHR.

Site of infection: gizzard.
Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul, Brazil.
Specimens studied: CHIOC no. 33172a-i (whole mounts); 14471, 14484, 14591, 14594, 15009, 15606 (wet material).

Desmidocercella ardeae (Nawrotzky, 1914)
Yorke & Maplestone, 1926
(Aproctoidea, Desmidocercidae)
(Fig. 1 a, b)

Host: *Ardea cocoi* - NHR.
Site of infection: body cavity (external intestinal surface).
Localities: Marajó Island, State of Pará, State of Mato Grosso do Sul, Brazil - NGD.
Specimens studied: CHIOC no. 33169a-d (whole mounts); 13503 (wet material).

The occurrence of the genus *Desmidocercella* Yorke and Maplestone, 1926 is assigned for the first time in a Brazilian host. The species has been included in *Pharyngosetaria* Lubimov, 1937, which is, actually, considered a synonym of the former genus, according to Chabaud and Anderson (1959).

Specimens which could not be identified to the already referred species, due to their poor state of preservation, are distributed in the following genera.

Capillaria sp.
(Trichinelloidea, Trichuridae, Capillariinae)

Host: *Theristicus c. caudatus* (Boddaert); common name: buff-necked ibis ("curicaca").
Site of infection: stomach.
Locality: Salobra, State of Mato Grosso do Sul, Brazil.
Specimens studied: CHIOC no. 11770 (wet material).

Contraecum sp.

Hosts: *Ardea cocoi*, *Butorides s. striatus*, *Casmerodius albus egretta*, *Cochlearius c. cochlearius*, *Egretta t. thula*, *Euxenura maguari*, *Jabiru mycteria* (Lichtenstein); common name: jabiru stork ("tuiuiu, jaburu"), *Nyctanassa violacea cayennensis*, *Nycticorax nycticorax hoactli*, *Pilherodius pileatus*, *Tigrisoma lineatum marmoratum*, *Tigrisoma* sp.; common name: heron ("soco").

Sites of infection: intestine, stomach (?).
Localities: States of Mato Grosso do Sul, Pará, Rio de Janeiro, São Paulo, Brazil.
Specimens studied: CHIOC no. 33176a-b, 33177a-b, 33178a-d, 33179 (whole mounts); 84, 2723, 2724, 3219, 4975, 5983, 6174, 7411, 7985, 8104, 8105, 8142, 8143, 8155, 8156, 8161, 8164,

8239, 8242, 8243, 8248, 8633, 8635, 8679, 8684, 8688, 8693, 8706, 8707, 8712, 8715, 8716, 8718, 8720, 8760, 8771, 8822, 9477, 9674, 9795, 11721, 11769, 11771, 11778, 11780-11782, 12775, 13075, 13152, 13244, 13480, 13482, 14191, 14194, 14195, 14202, 14468, 14484, 14555, 14576, 14579, 14604, 14653, 14966, 14970, 14972, 14975, 15039, 15042, 15516, 15592, 17996, 20459, 29158*, 30145 (wet material); * from the Zoological Garden of Rio de Janeiro.

Porrocaecum sp.

Hosts: *Ardea cocoi*, *Cochlearius c. cochlearius*, *Egretta t. thula*, *Ixobrychus exilis erytromelas* (Vieillot) (= *Ardetta erytromelas*); common name: least bittern ("soco-mirim vermelho").
Sites of infection: intestine, stomach (?).
Locality: State of Mato Grosso do Sul, Brazil.
Specimens studied: CHIOC no. 6676, 6677, 8102, 8144, 8638, 11352, 12448, 12636, 12980, 13074, 13257, 13258, 15531, 15533 (wet material).

Procyrnea sp.
(Habronematoidea, Habronematidae, Habronematinae)

Hosts: *Euxenura maguari*, *Euxenura* sp.
Site of infection: gizzard.
Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul, Brazil.
Specimens studied: CHIOC no. 33174a-d (whole mounts); 9461, 14468, 14471, 14484, 14591 (wet material).

Tetrameres sp.

Hosts: *Phimosus infuscatus nudifrons* (Spix) (= *Ibis nudifrons*); common name: bare-faced ibis ("coró-coró"); *Syrigma sibilatrix* (Temminck); common name: whistling heron ("maria faceira"), *Theristicus c. caudatus*.
Site of infection: gizzard.
Locality: State of Mato Grosso do Sul, Brazil.
Specimens studied: CHIOC no. 8699, 11501, 13098 (wet material).

Viktorocara sp.
(Acuarioidea, Acuariidae, Schistorophinae)
(Fig. 1 g, h)

Host: *Syrigma sibilatrix* - NHR.
Site of infection: gizzard.
Locality: State of Mato Grosso do Sul, Brazil - NGD.
Specimen studied: CHIOC no. 33175 (whole mount).

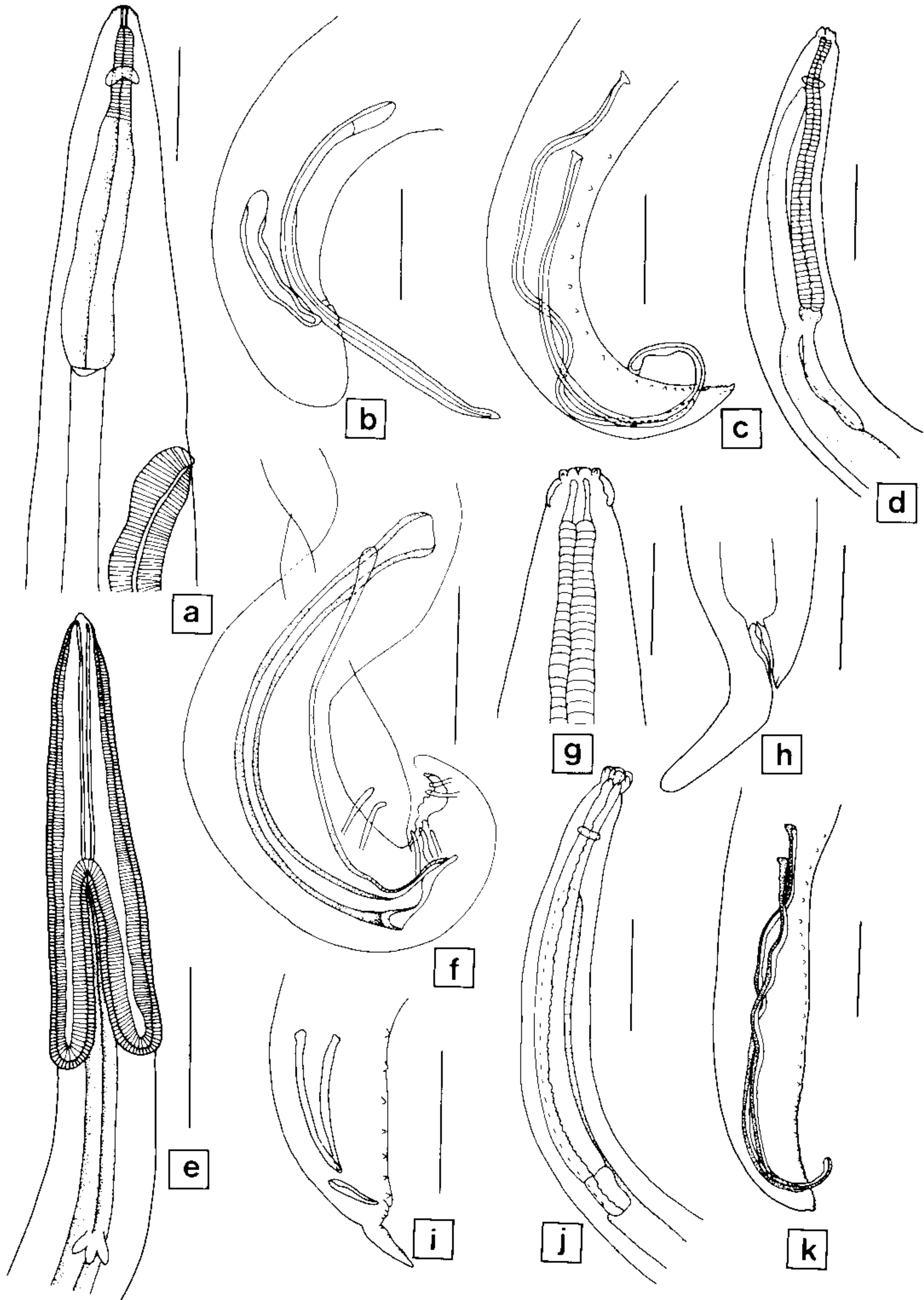


Fig. 1: *Desmidocercella ardeae*. a: anterior portion of female, lateral view. b: posterior portion of male, lateral view. *Contracaecum plagiaticium*. c: posterior portion of male, lateral view. d: anterior portion of male, lateral view. *Desportesius invaginatus*. e: anterior extremity of male, lateral view. f: posterior portion of male, lateral view. *Viktorocara* sp. g: anterior extremity of female, lateral view. h: posterior extremity of female, lateral view. *Porrocaecum reticulatum*. i: posterior extremity of male, lateral view. j: anterior portion of male, lateral view. *Contracaecum microcephalum*. k: posterior portion of male, lateral view. (Bars—in mm: 0.05 in fig. h; 0.1 in figs b, g; 0.2, in figs a, c, e, f; 0.5 in figs d, i, k; 1 in fig. j).

The genus *Viktorocara* Guschanskaya, 1950 has been reported from birds representing the families Charadriidae, Icteridae and Scolopacidae from Europe, Cuba, USA and Canada (Wong & Lankester 1984). This is the first report of the genus in South America.

Other nematode species reported from Ciconiiformes in Brazil and not found during the present study:

Capillaria brasiliensis Freitas, 1933, from *Nycticorax nycticorax hoactli*; *C. venteli* Freitas & Almeida, 1935, *Dispharynx magnilabiata* (Molin, 1860) Gendre, 1920 from *Ajaia ajaja* (L.) (= *Platalea ajaja*); common name: roseate spoonbill ("colhereiro, ajajá"); *Eustrongylides perpapillatus* Jagerskiold, 1909 from *Ardea leuca* (?), *Casmerodius albus egretta*; *Hystrichis acantocephalicus* Molin, 1861 from *Phimosus i. infuscatus* (Lichtenstein); common name: green ibis ("tapicuru, maçarico preto"), *Phimosus infuscatus nudifrons* (Cram 1927, Freitas 1933, Freitas & Almeida 1935, Rêgo & Vicente 1988).

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