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NEMATODE PARASITES OF SILUROID FISHES. II. *SPINITECTUS CABALLEROI* SP. NOV. (NEMATODA: SPINITECTINAE)

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ABSTRACT

One male and one female *Spinitectus caballeroi* sp. nov., have been collected from a siluroid fish, *Bagarius bagarius* (Ham.) at Midnapore, West Bengal, India. This is the seventeenth species of the genus recorded from India (tanking into consideration of the synonymity of *S. fossili* with *S. major*). The new species is separated from all recorded ones by the absence of caudal alae in male, and the presence of 102 spinous circlets in male and 208 in female (the female bears additional irregularly aranged spines up to tail tip), eight pairs of caudal papillae in male of which two pairs are postanal, unequal and dissimilar spicules of which left one is longer, proximity of the vulva to the anus and thick shelled eggs.

RESUMEN

En el pez siluroide, *Bagarius bagarius* de Midnapore, Bengala occidental, India, se colectó un ejemplar macho y una hembra del nemátodo *Spinitectus caballeroi* sp. nov. Corresponde a la décimo-séptima especie del género que ha sido registrada en la India, incluyendo la sinonimia de *S. fossili* con *S. major*. La nueva especie se diferencia de las ya conocidas por la ausencia del ala caudal en el macho y la presencia de 102 anillos espinosos; en la hembra existen 208 y además hay espinas arregladas irregularmente hasta el final de la extremidad caudal. Se presentan ocho pares de papilas caudales en el macho, de las cuales dos son postanales. Las espículas son desiguales en estrucutra y tamaño, la izquierda es más grande. La vulva se encuentra próxima al ano y los huevos poseen una cáscara gruesa.

INTRODUCTION

One male and one female nematodes of the genus *Spinitectus* Fourment, 1883 were collected from the stomach of one *Bagarius bagarius* (Ham.) a siluroid fish, at Midnapore, West Bengal, India. These could not be assigned to any of the hitherto known species.

The nematodes have been deposited at the Parasitology Laboratory, Zoology Department, Burdwan University, Burdwan, West Bengal, India.

Host: *Bagarius bagarius* (Ham.)

Locality: Kansain river, Midnapore, West Bengal, India.

Location: Stomach.

Holotype: One male, Regd. No. BUPL 60 a.

Paratype: One female, Regd. No. BUPL 60 b.

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DESCRIPTION

The parasites are small and pink in color while alive. The cuticle is transversely striated. The body is armed with circlets of backwardly directed spines. The spinous circlets number 102 in male and 208 in female, amongst which 16 in male and 21 in female are compact and closely set. The rest of the circlets

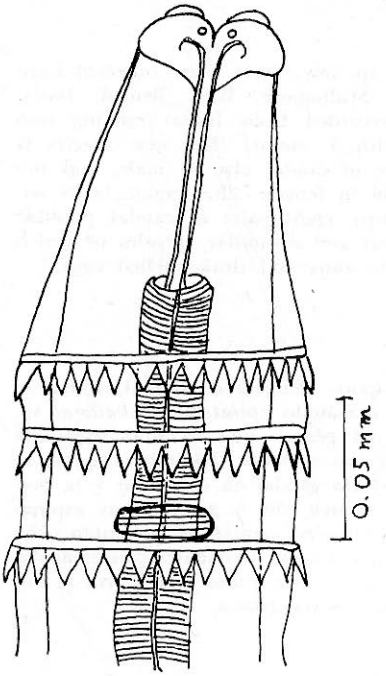

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Fig. 1. Anterior end of female, lateral view.

are sparsely distributed. The distance between the circlets as also the spines borne by each of them in both the sexes and their metrical variations are computed in Tables I and II. Upto 16 circlets only. In female the circlets between 17 and 21 are like those of the preceeding one. Rest of the circlets posterior to 16 in male and 21 in female are irregularly spaced bearing sparsely distributed spines. Morphometric data on the aforesaid subject have been provided in Table III.

The mouth is a dorsiventral slit bearing two prominent lateral lips (Fig. 1). One papilla is present in each lip. The buccal capsule is chitinous and funnel-shaped. The oesophagus is bipartite. The anterior part is short, narrow and

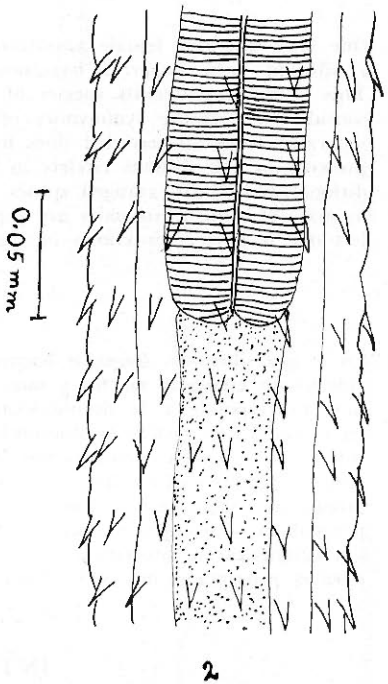

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Fig. 2. Junction of oesophagus with the intestine of a female, lateral view.

muscular, while the posterior part is wide, long and glandular continuing into the intestine (Fig. 2). The excretory pore could not be made out.

Male: Spinous circlets are limited to 102 only beyond which there is no spine. The tail is bluntly rounded. Caudal alae are wanting. Five longitudinal rows of discontinuous tubercles are present on the ventral side of the caudal region. There are eight pairs of caudal papil-

TABLE 1

DISTANCE BETWEEN SPINOUS CIRCLETS. ALL MEASUREMENTS IN MM

Circlets:	*1-2*	*2-3*	*3-4*	*4-5*	*5-6*	*6-7*	*7-8*	*8-9*	*9-10*	*10-11*	*11-12*	*12-13*	*13-14*	*14-15*	*15-16*
Male	0.04	0.05	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Female	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02

TABLE 2

NUMBER OF SPINES IN CIRCLETS AND THEIR METRICAL VARIABILITY. ALL MEASUREMENTS IN MM

	Breadth of circlet		*Number of spines in circlet*		*Length of spine in circlet*	
Row	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
1	0.10	0.10	14	16	0.01	0.01
2	0.11	0.10	14	15	0.01	0.01
3	0.11	0.11	12	14	0.015	0.015
4	0.11	0.11	12	14	0.015	0.015
5	0.11	0.11	11	14	0.015	0.015
6	0.11	0.11	11	14	0.015	0.015
7	0.12	0.10	10	12	0.015	0.015
8	0.13	0.11	10	11	0.015	0.015
9	0.12	0.11	10	11	0.01	0.02
10	0.13	0.11	10	9	0.01	0.02
11	0.13	0.12	8	9	0.01	0.02
12	0.11	0.12	9	9	0.01	0.02
13	0.11	0.12	9	10	0.01	0.02
14	0.11	0.12	9	8	0.01	0.015
15	0.12	0.12	9	8	0.01	0.015
16	0.12	0.12	9	8	0.015	0.02

TABLE 3

MEASUREMENTS IN MM

	Male	*Female*
Body length	5.40	22.34
Body breadth	0.17	0.20
Dorsiventral diameter of head	0.03	0.05
Distance between anterior end and last spinous circlet	3.22 (upto 102 circlets)	19.54 (upto 208 circlets)
Buccal capsule length	0.07	0.09
Buccal capsule breadth	0.01	0.01
Oesophagus length, muscular part	0.55	1.08
Oesophageal length, glandular part	1.80	3.10
Oesophagus breadth, muscular part	0.02	0.03
Oesophagus breadth, glandular part	0.06	0.04
Nerve ring from anterior end	0.12	0.18
Tail length	0.12	0.12
Spicule length, left	0.89	
Spicule length, right	0.22	
Vulva from posterior end		0.36
Egg		0.03 x 0.02

lae, of which five are preanal, one adanal and the rest are postanal in position. Two unequal and dissimilar spicules are present. The spicular ratio is 1:4. The spicule is small, narrow and gradually tapering. The left spicule is long, wide and provided with a knob-like proximal termination (Fig. 3). No accesory piece is present.

Female: The number of circlets

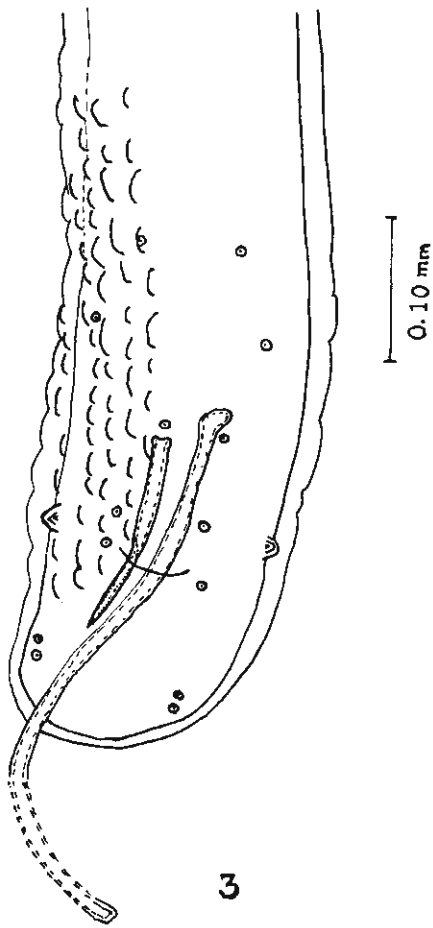

Fig. 3. Posterior end of male, ventral view.

though limited to 208, but sparsely distributed spines are observed upto the tail tip (Fig. 4). The tail is conical (Fig. 5) The vulva is located on a prominence and is situated just anterior to the anal aperture. The vagina is directed anteriad (Fig. 6), which later turns caudal. The eggs are oval and thick-shelled (Fig. 7).

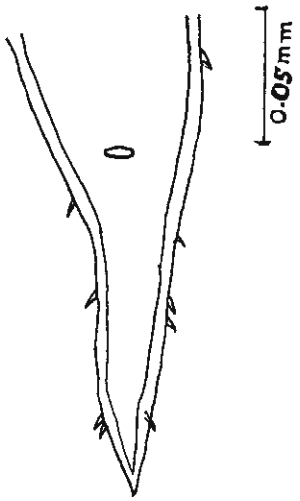

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Fig. 4. Posterior end of female, ventral view.

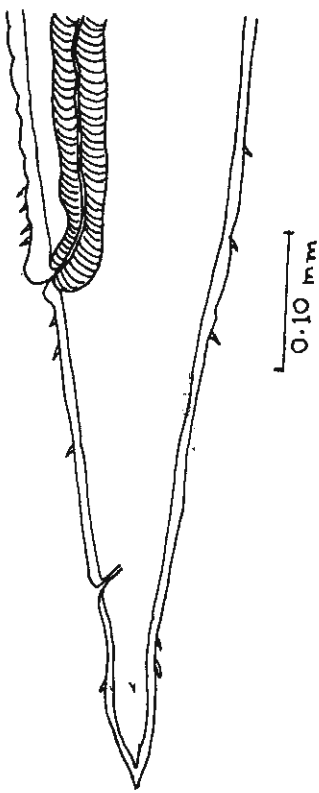

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Fig. 5. Posterior end of female, lateral view.

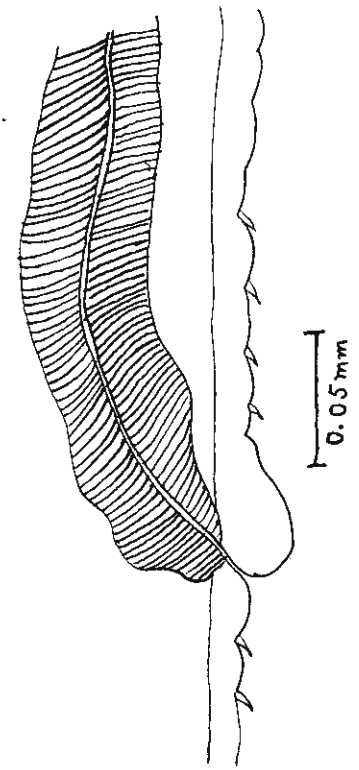

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Fig. 6. Vulvar region, lateral view. Arrow points towards cephalic end.

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Fig. 7. Egg, lateral view.

DISCUSSION

The present worms approach *Spinitectus* in possessing circlets of backwardly directed spines, buccal capsule, divided type of oesophagus, caudal papillae in male, vulva in the posterior part of the body and thick-shelled eggs. The genus embraces a number of species: *S. inermis* (Zeder, 1800), *S. echinatus* (Linstow, 1878), *S. oviflagellis* Fourment, 1883, *S. cristatus* Railliet and Henry, 1915, *S. gracilis* Ward and Magath, 1917, *S. ranae* Morishita, 1926, *S. gigi* Fujita, 1927, *S. carolini* Holl, 1928, *S. asper* Travassos, Artigas and Pereira, 1928, *S. guntheri* Baylis, 1929, *S. yorkei* Travassos, 1929, *S. indicus* Verma and Agarwal, 1932, *S. rudolphiheringi* Vaz and Pereira, 1934, *S. mogurndae* Yamaguti, 1935, *S. corti* Moorthy, 1938, *S. minor* (Stewart, 1914) Baylis, 1939, *S. bancrofti* Johnston and Mawson, 1940, *S. percalatus* Johnston and Mawson, 1940, *S. plectroplites* Johnston and Mawson, 1940, *S. mastacembeli* Karve and Naik, 1951, *S. nelli* Karve and Naik, 1951, *S. notopteri* Karve and Naik, 1951, *S. major* Khera, 1956, *S. armatus* Ali, 1957, *S. longipapillatus* Ali, 1957, *S. singhi* Ali, 1957, *S. thapari* Ali, 1957, *S. bengalensis* Chakravarty, Sain and Majumdar, 1961. *S. mormyri* Campana-Rouget, 1961, *S. allaeri* Campana-Rouget, 1961, *S. polli* Compana-Rouget, 1961, *S. oviflagellis* Rahaman, 1964, *S. komiyai* Sahay and Prasad, 1965, *S. pseudotropii* Agarwal, 1965, *S. petrowi* Belons, 1965, *S. mediterraneus Nilolaeva,* 1966, *S. fossili* Lal., 1966, *S. batrachi* Lal, 1966, *S. tamari* Naidenova, 1966, *S. echerei* Parukhin, 1967, *S. thurstonae* Ogden, 1967, *S. mollis* Mamaev, 1968, *S. beaveri* Overstreet, 1970, *S. agnostomi* Moravec and Barus, 1971 and *Spinitectus* larva in shrimp (Crustacea) has been recorded by Johnson (1966).

The following species have been recorded from India: *S. minor, S. corti, S. indicus, S. major, S. mastacembeli, S. notopteri, S. armatus, S. longipapillatus, S. singhi, S. thapari, S. bengalensis, S. komiyai, S. pseudotropii, S. fossili, S. batrachi* and larvar *Spinitectus* from shrimp. *S. major* and *S. fossili* are synonymous and on the basis of the law of priority *S. major* is to be regarded a valid species (Kalyankar, 1970).

The present nematodes come closer to *S. indicus* and *S. bancrofti* in the absence of caudal alae in male. But they differ from them in the position of the vulva and the number and arrangements of the spines in the circlets. The number, size and arrangements of the spinous circlets in both the sexes of the present worms coupled with the postion of the vulva separate them from all the hitherto known species of the genus and the name *Spinitectus caballeroi* is proposed to accommodate them.

Specific diagnosis: *Spinitectus caballeroi* sp. nov.: Body slender; spinous circlets 102 in male and 208 in female, additional irregular sparse spines in female; lips two each with one papilla; buccal capsule funnel shaped; bipartite oesophagus; five pairs of preanal, one pair adanal and two pairs postanal papillae in male; unequal and dissimilar spicules of which left being longer; vulva anteriad but close to anus; vagina anteriorly directed; oval and thick-shelled eggs.

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