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Title	COSMOCEPHALUS OBVELATUS (CREPLIN, 1825) (NEMATODA : ACUARIIDAE) COLLECTED FROM THE ESOPHAGUS OF ROCKHOPPER PENGUIN, EUDYPTES CRESTATUS
Author(s)	AZUMA, Hiroshi; OKAMOTO, Munehiro; OHBAYASHI, Masashi et al.
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BRIEF COMMUNICATION

COSMOCEPHALUS OBVELATUS (CREPLIN,
1825) (NEMATODA : ACUARIIDAE)
COLLECTED FROM THE ESOPHAGUS OF
ROCKHOPPER PENGUIN, *EUDYPTES CRESTATUS*

Hiroshi AZUMA, Munehiro OKAMOTO, Masashi OHBAYASHI,
Yuji NISHINE¹ and Takeshi MUKAI¹

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The genus *Cosmocephalus* MOLIN, 1858 is the nematode parasitizing the esophagus, proventriculus or ventriculus of fish-eating birds, such as, *Larus* or *Uria* species. *Cosmocephalus* sp. uses fish as the intermediate host and the adult worms have cuticular cord-like thickening known as "cordon", which extends posteriorly from the mouth.

A few nematodes belonging to the genus *Cosmocephalus*, were collected from the esophagus of two rockhopper penguins, *Eudyptes crestatus*, which died in the Maruyama Zoo, Sapporo, on March 27, after being kept for 4 and 102 days, respectively. These penguins were captured in Chile, South America, and imported into Japan on March 10, 1987.

The nematodes were fixed in 10% formalin solution and cleared in lacto-phenol solution for microscopic observation.

Description: Comparatively large nematode. Measurements are shown in Table 1. Mouth with two lateral lips, each with a pair of papillae at its base. Cuticle with prominent transverse striations. Four long cordons with scalloped inner border and forming characteristic loop. Salient bicuspid cervical papillae posterior to cordons; lateral alae originating just behind cervical papillae. Pharynx long, reaching level of cervical papillae. Excretory pore posterior to level of cervical papillae; nerve ring surrounding muscular part of esophagus a short distance from its anterior end. Male (8 specimens): Caudal extremity curved ventrally. Spicules unequal, dissimilar; right

Department of Parasitology, Faculty of Veterinary Medicine, Hokkaido University, Sapporo 060, Japan

¹ Maruyama Zoo, Sapporo 064, Japan

massive, left more elongated and slender, and distal end expanded and triangular in form. Caudal alae supported by nine pairs of pedunculate caudal papillae, four of which are preanal and five postanal, plus two pairs of small papillae near tail end. Female (19 specimens): Vulva slightly anterior to the middle of body. Tail end with characteristic knob-like thickening and a pair of small papillae near tail end. Uteri packed with embryonated thick-shelled eggs.

Although eleven species of *Cosmocephalus* have been reported (SKRJABIN et al., 1965), ANDERSON & WONG (1981) considered that only four were valid, namely, *C. obvelatus* (CREPLIN, 1825); *C. capellae* YAMAGUTI, 1935; *C. imperialis* MORISHITA, 1930 and *C. jaenschi* JOHNSTON & MAWSON, 1941. The present specimens were identified as *C. obvelatus* on the basis of their measurements and morphological aspects; bicuspid cervical papillae, length of the spicules, and the morphology of the last pair of postanal papillae and of the distal part of the left spicule. The size of the eggs was slightly smaller than those as described by ANDERSON & WONG (1981) but concurred with some specimens described by SKRJABIN et al. (1965).

In Japan, *C. capellae* has been reported, and *C. obvelatus* is the second species of the genus *Cosmocephalus*. And, the penguin is a new host record for the genus *Cosmocephalus*. Other than these species, MORISHITA (1930) described *C. imperialis* of *Uria troile*. This bird, however, was captured in South Sakhalin.

REFERENCES

- 1) ANDERSON, R. C. & WONG, P. L. (1981): Redescription of *Cosmocephalus obvelatus* (CREPLIN, 1825) (Nematoda: Acuarioidea) from *Larus delawarensis* ORD (Laridae). *Can. J. Zool.*, **59**, 1897–1902
- 2) MORISHITA, K. (1930): Two nematode parasites of the guillemot. *Jpn. J. Zool.*, **3**, 61–72
- 3) SKRJABIN, K. I., SOBOLEV, A. A. & IVASHKIN, V. M. (1965): Principles of nematology, vol. 14. Spirurata of animals and man and diseases caused by them. Part 3. Acuarioidea. Moscow Izdat. Nauka, Moscow. (In Russian)

TABLE 1 Measurements of *Cosmocephalus obvelatus* (in mm)

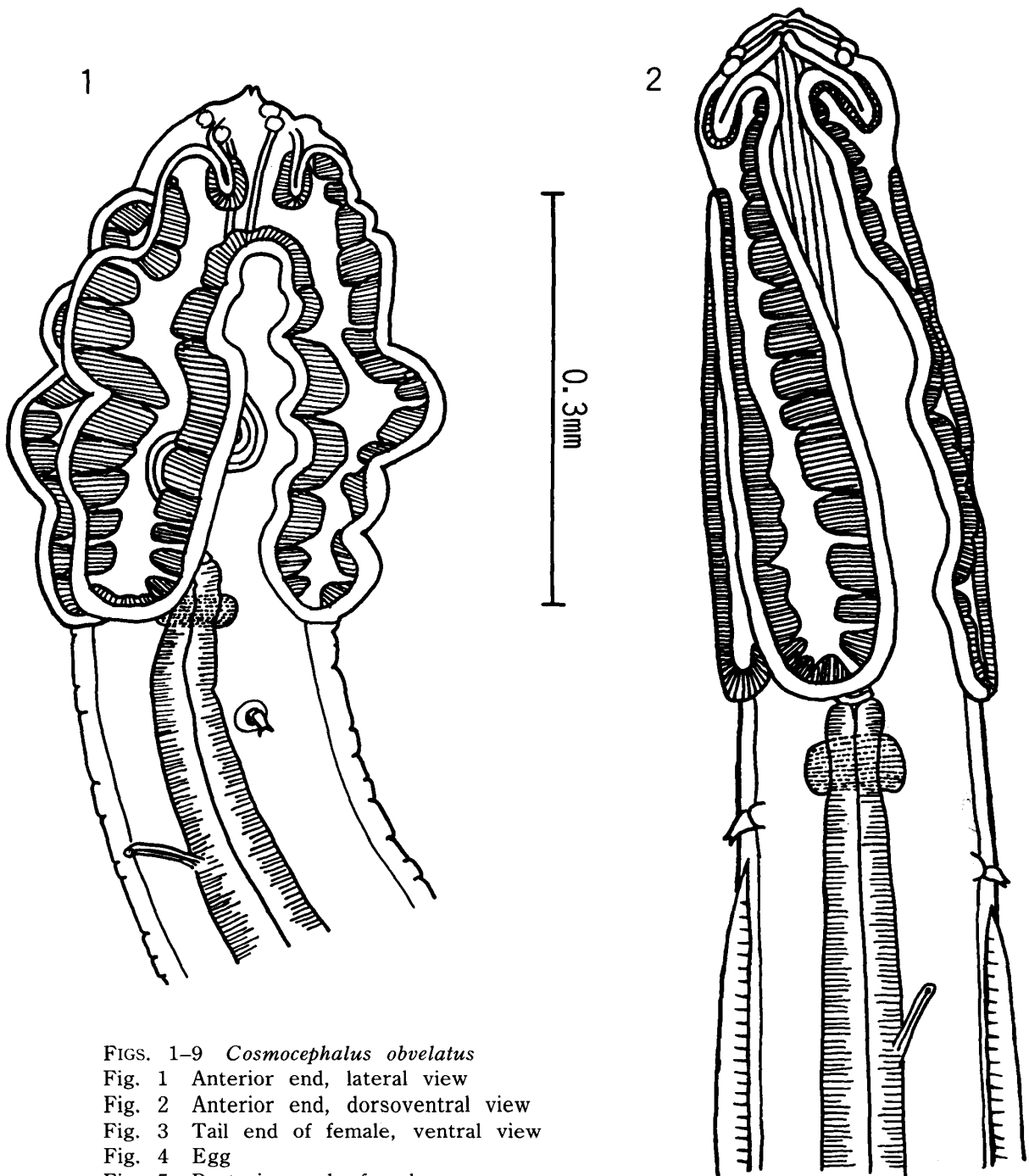
	Male		Female	
	Present authors* N = 8	ANDERSON & WONG** N = 10 (1981)	Present authors N = 19	ANDERSON & WONG N = 10 (1981)
Body				
length	9.60 - 13.00	9.9 - 14.3	11.70 - 22.80	15.8 - 22.3
width (mid-body)	0.24 - 0.30	0.20 - 0.35	0.28 - 0.48	0.32 - 0.50
Cordon length	0.38 - 0.52		0.42 - 0.80	
Pharynx length	0.44 - 0.50	0.38 - 0.51	0.48 - 0.76	0.57 - 0.73
Esophagus length				
muscular part	0.80 - 1.08	1.0 - 1.3	0.80 - 1.56	1.2 - 1.5
glandular part	2.76 - 4.08	3.6 - 4.3	2.32 - 5.24	4.1 - 5.1
Cervical papillae				
from head end	0.44 - 0.60	0.35 - 0.54	0.45 - 0.90	0.61 - 0.79
Nerve ring				
from head end	0.46 - 0.58	0.42 - 0.53	0.44 - 0.84	0.64 - 0.77
Excretory pore				
from head end	0.52 - 0.72	0.50 - 0.68	0.52 - 1.04	0.71 - 0.94
Spicule length				
left	0.56 - 0.64	0.59 - 0.70	—	—
right	0.16 - 0.18	0.18 - 0.22	—	—
Egg	—	—	0.034 - 0.037 ×	0.040 - 0.045 ×
	—	—	0.018 - 0.022	0.025
Vulva				
from tail end	—	—	4.30 - 13.60	7.4 - 10.4
Tail length	0.38 - 0.44	0.40 - 0.50	0.20 - 0.30	0.22 - 0.38

N = Number of specimens examined

* Host : *Eudyptes crestatus*

** Host : *Larus delawarensis*

Cosmocephalus obvelatus from penguin



FIGS. 1-9 *Cosmocephalus obvelatus*

Fig. 1 Anterior end, lateral view

Fig. 2 Anterior end, dorsoventral view

Fig. 3 Tail end of female, ventral view

Fig. 4 Egg

Fig. 5 Posterior end of male

Fig. 6 Posterior end of male, ventral view

Figs. 7 & 8 Left spicule, lateral view

Fig. 9 Right spicule, lateral view

