



Title	STRONGYLOIDES AVIUM CRAM, 1929 (STRONGYLOIDIDAE : NEMATODA) FROM RALLUS AQUATICUS INDICUS BLYTH
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***STRONGYLOIDES AVIUM* CRAM, 1929**
(**STRONGYLOIDIDAE : NEMATODA**)
FROM ***RALLUS AQUATICUS INDICUS* BLYTH**

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Three parasitic females of *Strongyloides* were obtained from the caeca of an eastern water-rail *Rallus aquaticus indicus* BLYTH captured at Ishikari near Sapporo. The rail was dissected on October 8, 1964.

Strongyloides avium CRAM, 1929

Host *Rallus aquaticus indicus* BLYTH

Habitat Caecum

Locality Ishikari, Hokkaido, Japan

Description of parasitic female Fine threadlike nematodes. Length of body 1.63~2.14 mm (average 1.90 mm), maximal width 0.038~0.046 mm (0.041 mm); body length/body width 35.4~54.7 (47.0). Tail short and conically tapered. Circumoral elevation divided indistinctly into paired right and left subdorsal, lateral and, subventral labial lobes. Stoma hexagonal and shallow. Esophagus filariform, 0.475~0.675 mm (0.548 mm) in length, 22.3~34.7% (29.1%) per body length; body length/length of esophagus 2.9~4.5 (3.6), increased slightly in width towards its posterior portion, 0.029~0.031 mm (0.030 mm) maximal width. Nerve ring 0.120~0.160 mm (0.143 mm) from head end. Intestine attaches straight nearly to rectum. Anus opens on ventral surface rising gently 0.039~0.043 mm (0.040 mm) from tail end; body length/length of tail 37.9~54.7 (47.6). Vulva situates 1.113~1.354 mm (1.252 mm), 63.7~68.5% (66.2%) per body length, from head end. A pair of labiate elevations transversely surrounds the opened vulva. Uterus opens directly on vulva, divergent oppositely, and connected through short oviducts with comparatively thick wall to ovaries. Anterior and posterior ovaries long, reflex respectively at 0.037~0.055 mm (0.043 mm) from end of esophagus and 0.019~0.059 mm (0.046 mm) from anus, and each ovary twists spirally once and reaches to the level of vulva. The terminal portion of the ovaries overlap, and end at a position anterior to vulva. Eight~21 (14.5) eggs in various divided cell stages arrange in a single row in the uterus. Uterine eggs elliptical, thin-shelled, 0.039~0.056 mm (0.046 mm) × 0.024~0.033 mm (0.027 mm).

Remarks Seven species of avian *Strongyloides* described up to the present are shown in table. CRAM (1936) suggested that *S. oswaldoi* may be the same species as *S. avium*, because the range of variation in dimensions of Puerto Rican specimens was found to embrace descriptions of specimens of the two avian species of *Strongyloides*. FREITAS &

TABLE List of avian *Strongyloides*

SPECIES	HOST	HABITAT	LOCALITY	AUTHOR
<i>S. avium</i>	<i>Gallus g. domesticus</i>	Caecum	U. S. A. *	CRAM (1929)
"	"	Intestine, Caecum	Puerto Rico	" (1936)
"	"	Intestine	Cuba	PÉREZ VIGUERAS (1930)
"	<i>Junco h. hyemalis</i>	"	U. S. A.	CRAM (1930)
"	<i>Fulica americana</i>	Intestine, Caecum	"	" "
"	<i>Colinus virginianus</i>	Intestine	(Experimental case)	" (1929)
"	<i>Bonasa umbellus</i>	Caecum	"	" (1930)
"	<i>Meleagris gallopavo</i>	"	"	" (1931)
<i>S. oswaldoi</i>	<i>Gallus g. domesticus</i>	Intestine	Brazil	TRAVASSOS (1930), ALMEIDA (1933)
<i>S. minimus</i>	<i>Dafila bahamensis</i>	Colon, Caecum,	"	FREITAS & ALMEIDA (1936)
<i>S. cubaensis</i>	<i>Butorides virescens maculatus</i>	?	Cuba	TRAVASSOS (1930)
<i>S. turkmenicus</i>	<i>Himantopus candidus</i>	Intestine	Russia	PÉREZ VIGUERAS (1942)
<i>S. ardeae</i>	<i>Nyctanassa violacea</i>	"	U. S. A.	KURTIEVA (1954)
<i>S. herodiae</i>	<i>Butorides v. virescens</i>	"	"	LITTLE (1966)
<i>S. sp.</i>	<i>Ardea h. herodius</i>	"	"	BOYD "
"	Otididae (Bustards)	?	Egypt	BAYLIS (1923)
"	<i>Gallus g. domesticus</i>	Intestine	Indonesia	NOTO-SOEDIRO (1933)
"	<i>Pavo m. muticus</i>	?	Japan	SAKAMOTO & TAKAHASHI (1963)
"	<i>Pavo c. cristatus</i>	Caecum	(Experimental case)	" " "
"	<i>Gallus g. domesticus</i>	"	"	" " "
"	<i>Agelaius phoeniceus</i>	?	U. S. A.	LITTLE (1966)

* including both spontaneous and experimental cases

Strongyloides avium from *Rallus aquaticus indicus*

ALMEIDA (1936) stated that *S. oswaldoi* is considered to be synonymous with *S. avium*, for dimensional differences of various body parts between both species was not recognized. Accordingly, the avian *Strongyloides* are thought to consist of six species at the present. The body length of the subject specimen is shorter than that of *S. avium* described by CRAM (1929, '36). It is, however, approximately the same body length, 2.2 mm, in CRAM's description (1929) of the type specimen of *S. avium*. Some uterine eggs with shorter major axis in comparison with that of *S. avium* are recognized in the subject specimens. The reason for this difference is thought to be that the major axis of some eggs inclining in the uteri look shorter than the true length. The dimensions of various parts of the body in the subject specimens, except for the above, bear a close resemblance to *S. avium* as reported by CRAM (1929, '36). The parasites, consequently, are identified as *Strongyloides avium* CRAM, 1929. This report is thought to be the first record of *S. avium* in Japan and also the first record of a new host.

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REFERENCES

- 1) ALMEIDA, J. LINS DE (1933): *Archos Esc. sup. Agric. Med. vet.*, **10**, 171 [CRAM (1936)]
- 2) BOYD, E. M. (1966): *J. Parasit.*, **52**, 503, 637
- 3) BAYLIS, H. A. (1923): *Parasitology*, **15**, 35
- 4) CRAM, E. B. (1929): *J. Parasit.*, **15**, 292
- 5) CRAM, E. B. (1929): *N. Am. Vet.*, **10**, 27
- 6) CRAM, E. B. (1930): *J. Parasit.*, **17**, 55
- 7) CRAM, E. B. (1931): *Ibid.*, **18**, 48
- 8) CRAM, E. B. (1936): *Revta Parasit. clin. Lab.*, **2**, 289
- 9) FREITAS, J. F. TEIXEIRA DE & ALMEIDA, J. LINS DE (1936): *Revta Dep. nac. Prod. anim.*, **3**, 1
- 10) KURTIEVA, L. (1954): (translated title) Contributions to helminthology published to commemorate the 75th birthday of K. I. SKRJABIN, 374, Chief Ed. PETROV, A. M., Moskva: Akademii Nauk SSSR (in Russian)
- 11) LITTLE, M. D. (1966): *J. Parasit.*, **52**, 85
- 12) NOTO-SOEDIRO, R. (1933): *Ned.-indische Bl. Diergeneesk.*, **45**, 547
- 13) PÉREZ VIGUERAS, I. (1936): *Mém. Soc. cub. Hist. nat.*, **10**, 53 [FREITAS, J. F. TEIXEIRA DE & ALMEIDA, J. LINS DE (1936)]
- 14) PÉREZ VIGUERAS, I. (1942): *Revta Univ. Habana*, **7**, 193 [YAMAGUTI, S. (1961): *Systema Helminthum*, **3**, Pt. 1, 199, New York: Interscience Publishers]
- 15) SAKAMOTO, T. & TAKAHASHI, H. (1963): Proceeding of the 32nd Meeting of the Japanese Society of Parasitology, *Jap. J. Parasit.*, **32**, Suppl., 296 (in Japanese)
- 16) TRAVASSOS, L. P. (1930): *O Campo*, **1**, 36
- 17) TRAVASSOS, L. P. (1930): *Mems Inst. Oswaldo Cruz*, **24**, 161

EXPLANATION OF PLATES

PLATE I

Parasitic female of *Strongyloides avium*

Fig. 1 Anterior end

Fig. 2 Vulval region

Fig. 3 Posterior end

Figs. 4 & 5 Whole body

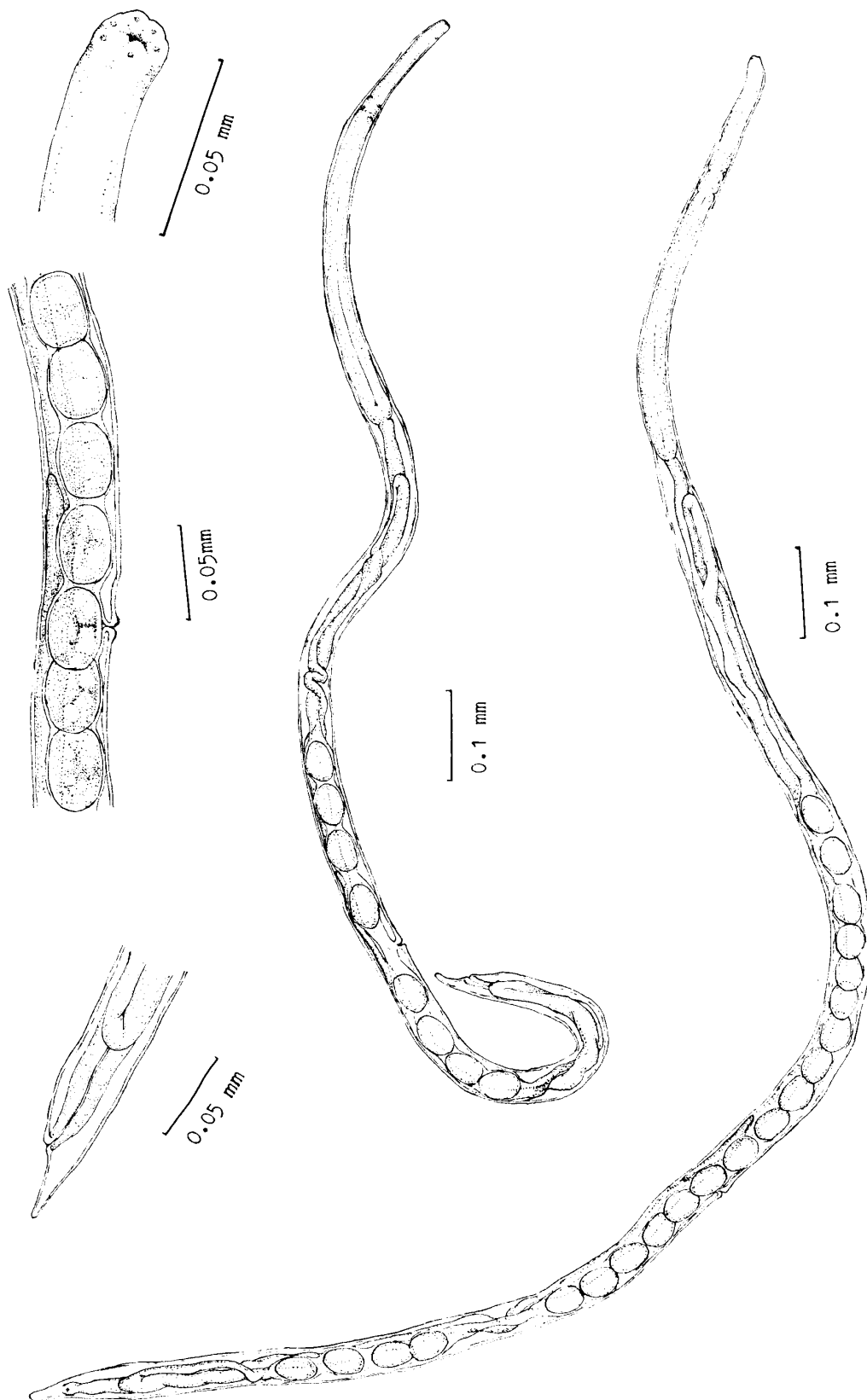


PLATE II

Parasitic female of *Strongyloides avium*

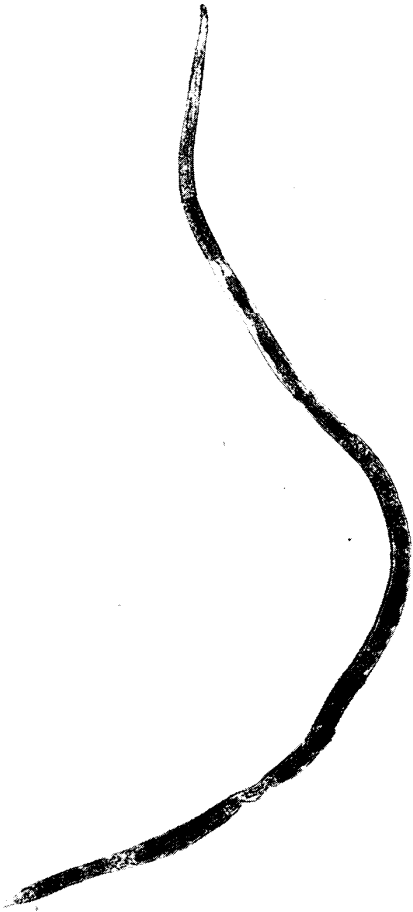
Fig. 6 Whole body × 63

Fig. 7 Vulval region × 650

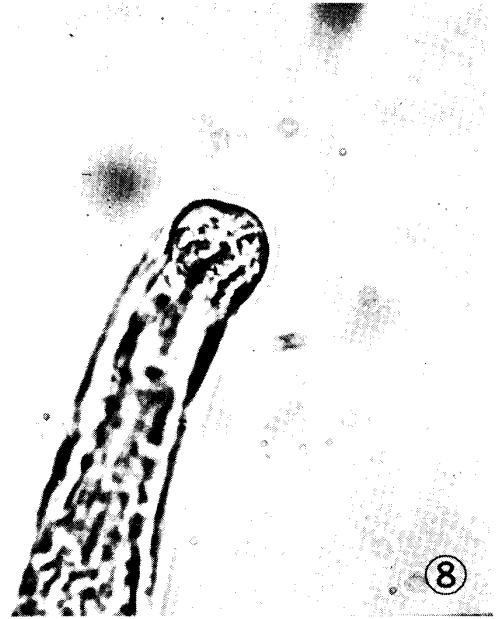
Fig. 8 Anterior end × 650

Fig. 9 Posterior end; lateral view × 320

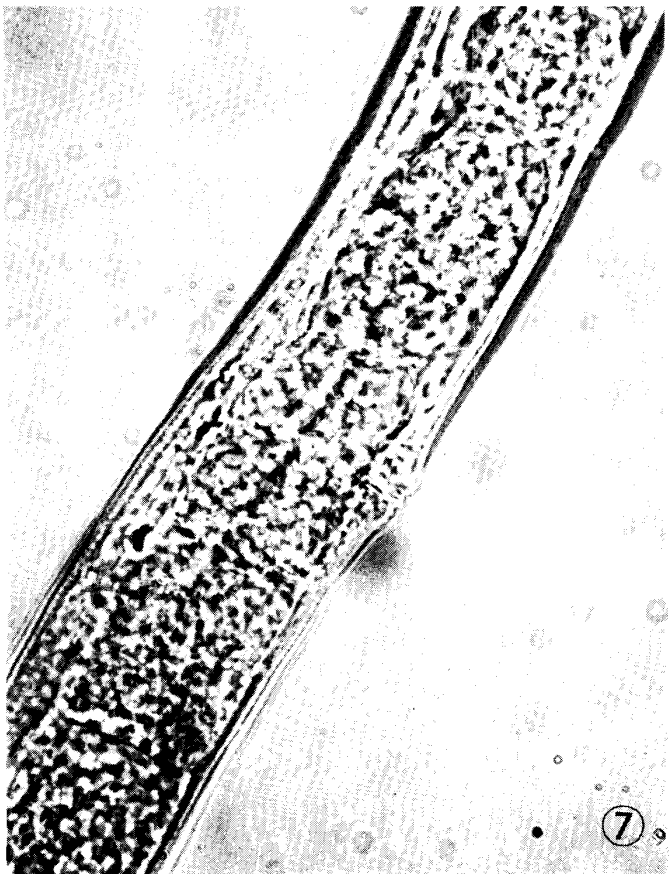
Fig. 10 Posterior end; ventral view × 320



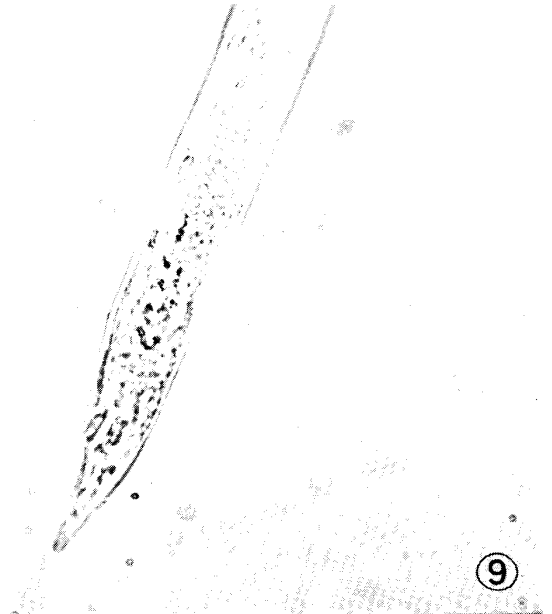
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