

## Two Species of the Genus *Capillaria* from the Guinea Fowl (Nematoda, Trichuridae)

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*Capillaria obsignata*, *C. annulata*, *C. perforans*, and *C. contorta* have been reported to parasitize the guinea fowl, *Numida meleagris*, but only the latter two species have been found in Japan (Tateiwa, 1960; Itagaki, 1966).

A great number of capillaria worms were collected from the small intestine and caecum of two 30-month old guinea fowls kept at a zoo in Tokyo during a period of July to September in 1971. The worms were examined and identified as the 2 species of the genus *Capillaria*: *C. obsignata* and *C. phasianina*.

One species of the worms, obtained from the small intestine in great numbers and also from the caecum in much smaller numbers, was assigned to *C. obsignata* Madsen, 1945 by means of the measurements and morphological characteristics. The other species of the specimens, 1 male and 4 females, was found only in the caecum and identified as *C. phasianina* Kotlán, 1940.

### Description of the species

#### *Capillaria obsignata* Madsen, 1945

Males: Length 8.3-11.0 mm, maximum breadth 0.038-0.048 mm; spicule length 0.96-1.51 mm, breadth 0.005-0.009 mm. The spicule is distally rounded and expanded into a funnel at the proximal end. Proximally the spicule is curved towards the ventral

side of the worm. The index of body length/spicule length is 6.9-8.6. The spicule sheath is transversely striated and without spines. At the caudal end of the body, there is a small circular brusa-like structure, supported laterally by two projections from the body.

Females: Length 10.5-16.5 mm, breadth 0.048-0.068 mm at the vulval level. The index of body length/head-vulva distance is 2.0-3.0. The vulva appears as a transverse slit and is without an appendage. The body tapers towards the caudal end and the anus is subterminal.

Eggs: The eggs are 0.053-0.056 mm long and 0.033-0.034 mm wide. The inner egg shell layer forms a small collar at the poles. (Table 1)

#### *Capillaria phasianina* Kotlán, 1940

Male: Length 22.0 mm, maximum breadth 0.040 mm; the index of body length/breadth 550; spicule length 2.531 mm, breadth 0.026 mm. The spicule is bluntly rounded at the tip. Proximally it is gradually swelling to form a funnel-like structure. The spicule sheath has minute spines. The index of body length/spicule length is 8.7. The tail has 2 prominent wing-like projections at the end.

Female: Length 40.0-40.8 mm, breadth 0.076-0.088 mm at the level of the vulva. The index of body length/head-vulva distance

Table 1 Comparison of the measurements of *C. obsignata* by authors (mm)

	Character	Madsen (1945)	Wakelin (1967)	The authors
Male	Body length (BL)	8.6-10.0	( 9.43) <sup>2)</sup>	8.3-11.0
	Body breadth (BB)	0.053	—	0.038-0.048
	Spicule length (SL)	1.20	( 1.37) <sup>2)</sup>	0.96-1.51 (1.28)
	Spicule breadth (SB)	0.008	—	0.005-0.009 (0.008)
	Index BL/SL	7.2-8.3	—	6.9-8.6 (7.4)
Female	Body length (BL)	10.7-12.7	(11.36) <sup>1)</sup> (12.38) <sup>2)</sup>	10.5-16.5 (13.0)
	Body breadth (BB)	—	—	0.048-0.068 (0.059)
	Distance of Head-vulva (H-V)	—	—	3.75-6.50 (5.67)
	Index BL/H-V	1.3-2.2	—	2.0-3.0 (2.28)
	Egg	0.050-0.062 × —	(0.050)× 0.025)	0.053-0.056 ×0.033-0.034

<sup>1)</sup> Specimens from *Gallus gallus domesticus*. <sup>2)</sup> Specimens from *Columba palumbus palumbus*. <sup>3)</sup> Measurements in parentheses show means.

Table 2 Comparison of the measurements of *C. phasianina* by authors (mm)

	Character	Madsen (1945) <sup>1)</sup>	Wakelin (1967)	The authors
Male	Body length (BL)	14.0-26.5 (20.5) <sup>2)</sup>	(19.99) <sup>3)</sup> (18.59) <sup>4)</sup>	22.0
	Body breadth (BB)	0.045-0.050	—	0.040
	Index BL/BB	350-500	—	550
	Spicule length <sup>5)</sup> (SL)	1.770-2.660 (2.320)	(2.04) <sup>3)</sup> (2.07) <sup>4)</sup>	2.531
	Spicule breadth (SB)	0.023-0.031	—	0.026
	Index BL/SL	6.5-12.0	—	8.7
Female	Body length (BL)	20.90-37.30 (28.90)	(31.99) <sup>3)</sup>	40.00-40.75 (40.38)
	Body breadth (BB)	0.040-0.075 (0.050)	—	0.076-0.088 (0.082)
	Index BL/BB	400-650	—	463-526
	Distance of Head-vulva (H-V)	6.5-12.5 (8.9)	—	9.5-11.0 (10.3)
	Index BL/H-V	2.6-4.3	—	3.7-4.2 (3.9)
	Distance of Vulva-swelling	0.060	—	0.057-0.064 (0.061)
	Egg	0.046-0.060 ×0.022-0.024	(0.057)× 0.025) <sup>3)</sup> (0.054)× 0.025) <sup>4)</sup>	0.047-0.054 ×0.024-0.027

<sup>1)</sup> Measurements of *C. cadovulvata*, a synonym of *C. phasianina*.

<sup>2)</sup> Measurements in parentheses show mean values.

<sup>3)</sup> Specimens from *Phasianina colchicus*.

<sup>4)</sup> Specimens from *Perdix perdix*.

<sup>5)</sup> Kellogg and Prestwood (1968) described that spicule length had been averaged 1.96 mm, with the tip bluntly rounded.

is 3.7-4.2. The vulva runs into a tube-shaped appendage, through which eggs are laid. There are a swelling 0.057-0.064 mm behind the vulva and a glandular structure on the tip of this swelling. The body is bluntly rounded at the caudal end.

Eggs: The eggs are 0.047-0.054 mm long and 0.024-0.027 mm wide, with very protruding plugs at both ends. The inner shell layer is not bent backward at the plugs. (Table 2)

*C. obsignata* and *C. phasianina* have been recorded by many authors (Clapham (1949), Itagaki *et al.* (1970), Kasimov (1956), Kellogg & Prestwood (1968), Madsen (1941, 1952 a, 1952 b)) in a vast range of birds: the former species from *Perdix perdix*, *P. p. perdix*, *Gallus gallus dom.*, *Phasianus colchicus*, *Meleagris gallopavo dom.*, *Numida meleagris*, *Cygnus atratus*, *Chloephaga poliocephala*, *Anser anser dom.*, *Columba livia livia*, *C. l. dom.*, *C. palumbus palumbus*, *C. oenas* and *Chloris chloris*; and the latter from *Perdix perdix*, *Phasianus colchicus*, a hybrid (*Phasianus colchicus torquatus* × *P. c. persicus*), *Chrysolophus pictus*, *Tragopan temmincki*, *Pavo cristatus* and the snow cock, *Tetraogallus* sp. The quinea fowl is not contained in the host record of *C. phasianina* and, furthermore, *C. phasianina* appears to be a species new to Japan.

## Discussion

The measurements of the specimens assigned to *C. obsignata* were in agreement with those of *C. obsignata* by Madsen (1945) except for the index of body length/head-vulva distance. He described the index to be 1.3 to 2.2, but that by the authors ranges from 2.0 to 3.0. If the index is 1.3 as stated by Madsen (1945), the vulva is to be situated about one fourth of the body length from the caudal end; but such a female specimen has not been observed by the authors. So, such a small index appears to be quite improbable.

Regretfully Kotlán's description (1940) on *C. phasianina* could not be consulted by the authors. *C. cadovulvata*, described by Madsen (1945) as a new species, was afterwards synonymized with *C. phasianina* by him (1951). Compared with the measurements of *C. cadovulvata* by Madsen (1945) and Wakelin (1967), as shown in table 2, the females collected by the authors were identical with those of Madsen in measurements, except that they were greater in length than those of Madsen (1945). The difference in length of the females might originate in host difference.

Madsen (1951) pointed out Kotlán's measurement (1940) of the spicule, 190 to 200,

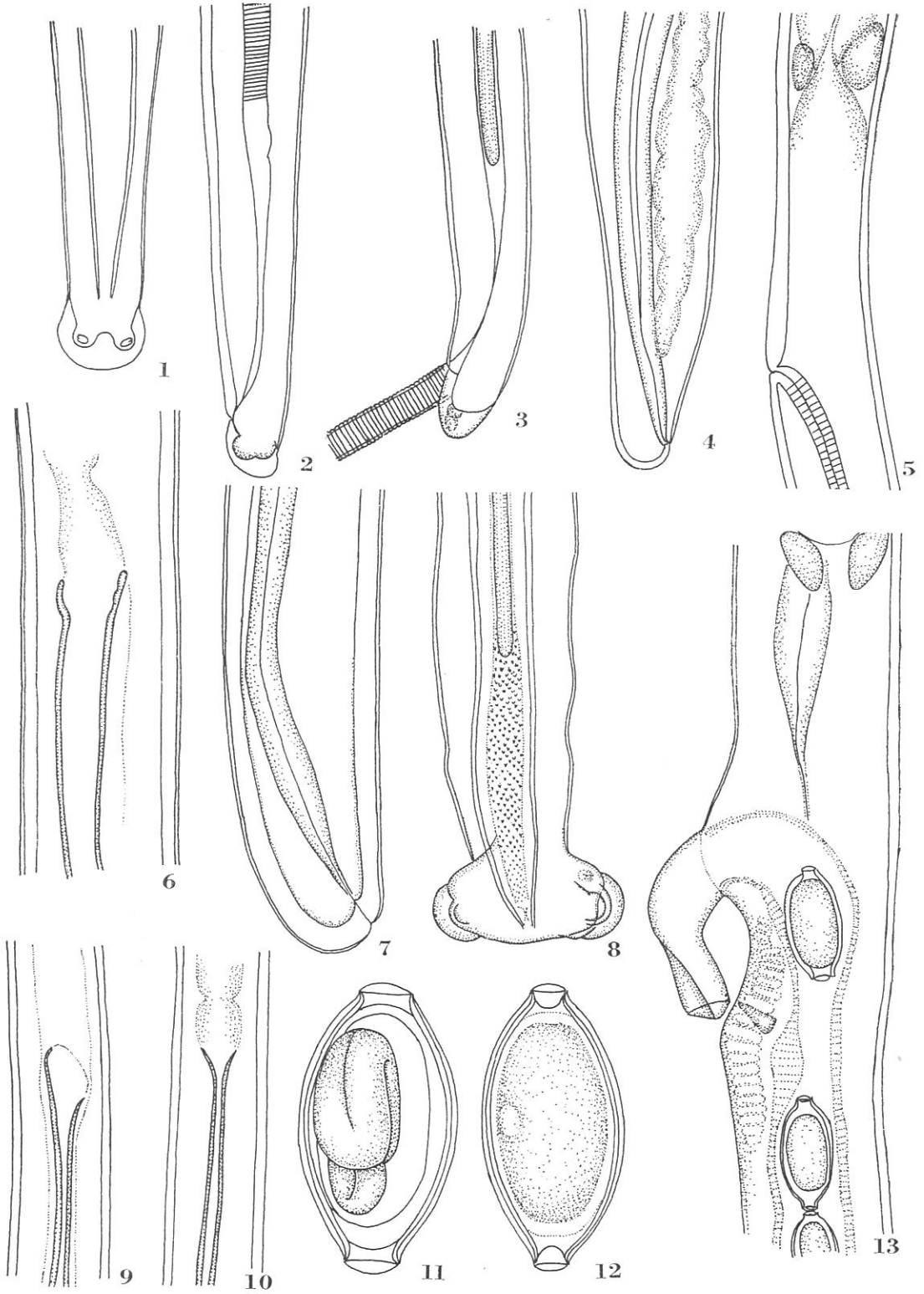
## Explanation of Figures

Figs. 1-5, 9, 10, 11 *C. obsignata*

1. Male caudal end, ventral view
2. Male caudal end, lateral view
3. Male caudal end with protruding spicular sheath
4. Female caudal end, lateral view
5. Vulva, lateral view
9. Proximal part of spicule, lateral view
10. Proximal part of spicule, ventral view
11. Egg

Figs. 6-8, 11, 13 *C. phasianina*

6. Proximal part of spicule, ventral view
7. Caudal end of female, lateral view
8. Caudal end of male, ventral view
13. Vulva with tubular appendage, lateral view



to be added a zero, and its measurement by the authors was almost identical with that by Madsen (1945).

*C. phasianina* and *C. anatis* are usually parasitic in the caecum, though Wakelin (1967) detected *C. phasianina* from the small intestine of the pheasant, *Phasianus colchicus* and partridge, *Perdix perdix* and Clapham (1961) from the jejunum of *Perdix perdix*. These two species of worms are morphologically akin to each other in the male caudal end, but *C. phasianina* can be easily distinguished from *C. anatis* by the presence of a tube-shaped appendage and a swelling near the vulva. The eggs of these species are, furthermore, different in contour: those of *C. phasianina* are smooth and those of *C. anatis* rough.

### Summary

*Capillaria obsignata* and *C. phasianina*, obtained from the small intestine and caecum of the guinea fowl, are morphologically described. The guinea fowl appears to be a new host of *C. phasianina* and *C. phasianina* would be a species new to Japan.

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## ホロホロチョウに認められた2種の毛体虫

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東京都下の某遊園地で孵化・育成された30カ月令のホロホロチョウのうち、1971年7~9月に剖検されたものの小腸および盲腸より2種の毛体虫が認められた。1種は *Capillaria obsignata* と同定された。本種はわが国においてみられる鶏の小腸寄生虫として最も普通であ

るが、ホロホロチョウにおいては小腸および盲腸にその寄生が認められた。他の1種は陰門部の特徴的な構造などから *C. phasianina* と同定された。本種は盲腸に寄生が認められ、わが国においては初めての報告である。