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Helminth fauna of Mt. Ontake. Part 1. Nematoda and Acanthocephala

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Helminth fauna of Mt. Ontake. Part 1. Nematoda and Acanthocephala*

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Abstract

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Part 1. Nematoda and Acanthocephala

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I. Nematodes of fishes

1. *Rhabdochona amago* Yamaguti, 1935

Habitat. Small intestine and pyloric ceca of *Salvelinus malma* (Walbaum).

Locality. Tumetagawa, Sintaka at an altitude of 1500 m.

Material. 5 males and 10 females.

The following measurements are to extend the ranges of variations in this species.

Male. Body 7.5 – 8.7 × 0.1 – 0.13 mm. Head 27 – 30 μ broad. Nerve ring and excretory pore 0.18 – 0.22 mm and 0.3 – 0.33 mm respectively from head end. Buccal cavity (including pharyngeal portion) 0.117 – 0.135 mm long, 15 – 18 μ in outside diameter at funnel-shaped anterior end, 9 – 12 μ broad at posterior end. Anterior

muscular portion of esophagus 0.21 – 0.24×0.024 – 0.03 mm, posterior glandular portion 2.4–3.1×0.11 – 0.13 mm. Tail 0.29 – 0.36 mm long. Longer spicule 0.45 – 0.48 mm long, shorter spicule 90 – 120 μ long.

Female. Body 13.4 – 18.3×0.15 – 0.2 mm. Nerve ring and excretory pore 0.23 – 0.27 mm and 0.36 – 0.45 mm respectively from head end. Buccal cavity 0.14 – 0.17 mm long, 20 – 30 μ in outside diameter at anterior end, 10 – 15 μ broad at posterior end. Anterior muscular portion of esophagus 0.25 – 0.33 × 0.024 – 0.04 mm, posterior glandular portion 3.0 – 4.35 × 0.12 – 0.21 mm. Tail 0.25 – 0.35 mm long. Vulva dividing body length in ratio of 1.1 – 1.3 : 1. Eggs 36 – 42×20 – 25 μ.

II. Nematodes of frogs

2. *Cosmocerca japonica* Yamaguti, 1938

This species was found in the large intestine of *Bufo vulgaris japonicus* and *Rana temporaria ornativentris* from Sintaka. The measurements obtained will be recorded elsewhere in a supplementary note on the species together with those which were made on the material from different hosts and localities.

It must be mentioned, however, that the females from *Rana* were the largest ever known and measured from 5.3 mm to 6.6 mm in length, whereas in the material from *Bufo* they were 3.5 – 3.6 mm long. This marked difference is merely due to age difference and not to specific difference.

3. *Cosmocercoides pulcher* Wilkie, 1930

Habitat. Large intestine of *Bufo vulgaris japonicus* Schlegel.

Locality. Altitude of 1500 and 1760 m.

The following measurements were made on 20 mature males and 8 gravid females.

Male. Body 7.1 – 8.5 × 0.33 – 0.43 mm. Nerve ring and excretory pore 0.45 – 0.58 mm and 0.66 – 0.85 mm respectively from head end. Esophagus 1.15 – 1.4 mm in length including pharyngeal portion, 48 – 60 μ broad at nerve ring, 0.138 – 0.18 mm broad at its posterior bulb. Tail 0.24 – 0.31 mm long. Spicules 0.25 – 0.29 mm long, accessory piece 0.12 – 0.17 mm long. 15 – 18 pairs of complex papillae.

Female. Body 8.9 – 9.8 × 0.4 – 0.5 mm. Nerve ring and ex-

cretory pore 0.55 – 0.6 mm and 0.75 – 0.85 mm respectively from head end. Esophagus 1.3 – 1.6 mm in length including pharyngeal portion, 54 – 60 μ broad at nerve ring, 0.13 – 0.18 mm broad at its posterior bulb. Tail 0.26 – 0.38 mm long. Vulva dividing body length in ratio of 1.1 – 1.3 : 1. Eggs 78 – 90×45 – 51 μ.

4. *Oswaldocruzia bialata* (Molin, 1860) Travassos, 1917

Habitat. Stomach and intestine of *Rana temporaria ornativentris* (Werner) and intestine of *Bufo vulgaris japonicus*.

Localities. Sintaka and Totinosawa.

Material. 2 males and 2 females.

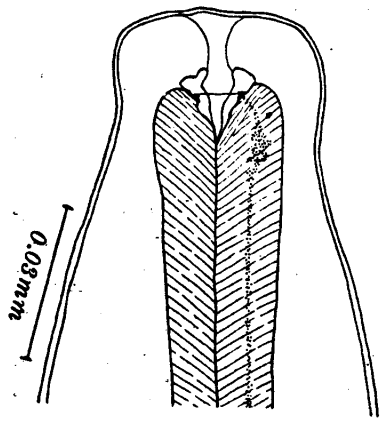
Male. Body 5.15 – 5.3×0.12 – 0.15 mm. Head 33 – 39 μ in diameter. Nerve ring 0.18 – 0.195 mm, excretory pore 0.27 – 0.28 mm, and cervical papillae 0.28 – 0.32 mm, from head end. Esophagus 0.38 – 0.42×0.054 mm. Spicules 0.2 mm long.

Female. Body 9.8 – 18.4×0.2 – 0.25 mm. Head 45 – 54 μ in diameter. Nerve ring 0.24 – 0.25 mm, excretory pore 0.33 – 0.42 mm, and cervical papillae 0.38 – 0.49 mm, from head end. Esophagus 0.5 – 0.52×0.06 – 0.084 mm. Tail 0.15 – 0.23 mm long. Vulva 2.7 – 6.55 mm from tail end, dividing body length in ratio of 1.4 – 2.0 : 1. Eggs 75 – 96×42 – 58 μ.

5. *Rhabdias montana* n. sp.

Habitat. Lung of *Rana temporaria ornativentris* (Werner).

Localities. Totinosawa and Sintaka.



Anterior extremity of *Rhabdias montana* n. sp.

Material. 8 fully gravid parasitic forms, fixed in 70% alcohol and mounted in lactophenolgelatine.

Body 6.0 – 7.8 mm in length, 0.26 – 0.33 mm in maximum breadth in vulvar region, whence it tapers toward both extremities. Head 42 – 50 μ in diameter, slightly constricted off. Nerve ring and excretory pore 0.19 – 0.22 mm and 0.22 – 0.25 mm respectively from head end. Vestibule 8 – 10 μ long, buccal capsule thick-walled, 15 – 16 μ in outside diameter. Esophagus 0.34 – 0.42 mm long by 50 – 65 μ

broad at posterior swelling. Tail tapering rapidly to a sharp point, 0.3 – 0.33 mm long. Vulva dividing body length in ratio of 1.05 – 1.15 : 1. Eggs elliptical, embryonated, 81 – 108×45 – 57 μ.

This species differs from *Rhabdias nipponica* Yamaguti, 1935, in the size of the body, the length of the esophagus, etc., as shown in the following table.

	Rhabdias nipponica[1]	*Rhabdias montana*
Body	4.1 – 5.4×0.17 – 0.25 mm	6.0 – 7.8×0.26 – 0.33 mm
Diameter of head	30 – 33 μ	42 – 50 μ
Esophagus	0.26 – 0.35 × 0.03 – 0.04mm	0.34 – 0.42 × 0.05 – 0.065 mm
Nerve ring from head end	0.13 – 0.15 mm	0.19 – 0.22 mm
Excretory pore from head end	0.16 – 0.19 mm	0.22 – 0.25 mm
Tail	0.18 – 0.26 mm	0.3 – 0.33 mm

III. Nematodes of mammals

6. *Protospirura muris* (Gmelin, 1890)

This species was found in the small intestine of *Apodemus geisha geisha* and *Clethrionomys smithii*. It has been described in Part 43 of my studies on the helminth fauna of Japan (p. 447 – 448).

7. *Heterakis spumosa* Schneider, 1866

Habitat. Large intestine of *Apodemus speciosus speciosus* (Temm. et Schleg.).

Locality. Sintaka at an altitude of 1500 m.

The principal measurements made on three males and five females are given in the following table in comparison with those given by previous authors.

Authors	Hsü (1932)	Li (1933)	Hall (1916)	Yamaguti
Number of worms examined ♂	5	5	?	3
Number of worms examined ♀	5	4		5

1) The measurements here given are from the original material and 8 additional specimens obtained from *Rana rugosa* in the Botanical Garden of University of Kyoto.

Body	♂ 8.4–10.2× 0.47–0.5	5.32–7.2× 0.28–0.29	6.4–9.85× 0.26	9.3–10.2× 0.4–0.45
	♀ 11.65–12.3× 0.48–0.53	8.75–9.95× 0.32–0.37	7–13× 0.3–0.52	9.5–15× 0.35–0.5
Esophagus (including pharynx and bulb)	♂ 0.65–0.74	0.65–0.85	0.87–0.98	0.9–0.97
	♀ 0.73–0.82	0.85–0.9		0.875–1.025
Nerve ring from head end	♂ 0.27–0.33	0.27–0.3		0.27–0.28
	♀ 0.3–0.39	0.26–0.3		0.27–0.33
Excretory pore from head end	♂ 0.42–0.46	0.27–0.38	0.44	0.35–0.41
	♀ 0.43–0.49	0.33–0.38		0.33–0.4
Cervical papillae from head end	♂ —	0.42–0.44	0.225–0.25	0.45
	♀ —	0.45–0.47		0.47
Tail	♂ 0.26–0.4	0.27–0.35	0.25–0.3	0.32–0.36
	♀ 0.73–0.92	0.74–0.76	0.68–0.74	0.77–0.95
Spicules	0.313–0.43	0.27–0.34	0.2–0.4 (?)	0.34–0.37
Diameter of sucker	0.098–0.115	0.06–0.07	0.086	0.105–0.11
Vulva from head end	5.7–6.1	4.5–4.95		4.6–6.7
Eggs	74–80× 47–49 μ	49–53× 38–41 μ	55–60× 40–55 μ	63–73× 42–50 μ

It is to be noted that the ranges of variation in egg length are different according to different investigators.

8. *Longistriata wolgaensis* Schulz, 1926

Habitat. Small intestine of *Clethrionomys smithii, Apodemus speciosus speciosus* (Temm. et Schl.) and *Microtus montebelli.*

Locality and date. Miure; May 2, 1942.

Male. Body filiform, 2.38–2.97×0.05–0.09 mm, with 16 longitudinal ridges at posterior end of cephalic cuticular vesicle. The lateral ridges extend to the lateral lobes of the bursa, to which some of the dorsal ridges also are continued. Cephalic vesicle 42–48×23–27 μ. Head, exclusive of cuticle, 16–18 μ in diameter. Nerve ring and excretory pore 90–105 μ and 0.18–0.23 mm respectively from head end. Cervical papillae not observed. Esophagus 0.3–0.33 mm long, 21–27 μ broad at enlarged posterior end. No prebursal papillae. Genital cone prominent, supported by two half-chitinized plates, of which the ventral is 24 μ long and the dorsal is wedge-shaped in profile and 15 μ long. Bursa copulatrix consisting of two symmetrical lobes with a distinct median incision dorsally; dorsal lobe lacking. Ventral rays with common trunk, divergent, reaching to margin of bursa; externolateral ray close together with mediolateral for its greater thick proximal portion but

divergent from it at its abruptly tapering distal portion; posterolateral branching off from mediolateral, only 40 μ long, gently curved posterodorsally; externodorsal ray arising from trunk of dorsal ray a little distal to its middle, reaching to margin of bursa; dorsal ray divided into two, distally bifid branches separated one from the other by the median marginal notch mentioned above. Spicules equal, very slender, curved ventrally at distal end, 0.36–0.42 mm long, 6–10 μ broad at anterior end, with a ventral ala at distal curvature and a cuticular swelling on dorsal side of its point. Gubernaculum fluted ventrally, attenuated anteriorly and posteriorly, 30–36 μ long by 4–10 μ thick at its thickened portion.

Female. Body filiform and coiled as in male, but strongly curved ventrad at posterior extremity in form of a hook, 2.25–3.85×0.057–0.1 mm. Nerve ring and excretory pore 96–200 μ and 0.17–0.24 mm respectively from head end. Cervical papillae not detected. Cephalic vesicle 39–48×16–30 μ, head end excluding cuticle 16–18 μ in diameter. Esophagus 0.27–0.34 mm long by 21–30 μ broad. Tail pointed conical, 30–40 μ long. Ovary usually reaching to posterior end of esophagus. Ovijector strongly muscular, about 40 μ in diameter. Vulva 54–90 μ in front of anus. Eggs elliptical, thin-shelled, containing up to 2–4 blastomeres, 66–78×33–45 μ.

IV. Acanthocephala of frogs

9. *Acanthocephalus lucidus* Van Cleave, 1925

Habitat. Small intestine of *Bufo vulgaris japonicus* Schlegel.

Locality. 1760 m.

Male. Body 5.6–10.8×0.9–1.75 mm. Proboscis 0.4–0.5×0.28–0.42 mm. Proboscis hooks 60–140 μ long, arranged in 14–16 longitudinal rows of 4–5 (occassionally 3) each. Proboscis sheath 0.6–1.0×0.25–0.43 mm. Lemnisci 0.4–1.5×0.2–0.25 mm. Testes 0.38–0.88×0.33–0.6 mm. Säfftigen's pouch 0.2–0.4 mm in diameter.

Female. Body 11–19×1.3–2.0 mm. Proboscis 0.5–0.65×0.3–0.48 mm. Proboscis hooks 75–155 μ long, in 14–16 longitudinal rows of 4–5 (occasionally 3) each. Proboscis sheath 0.8–1.1×0.32–0.5 mm. Lemnisci 1.1–1.45 mm long. Uterine bell and uterus 0.9–1.35 mm in combined length. Vaginal funnel 0.15–

0.28×0.06–0.084 mm. Vaginal sphincter 50–75×95–126 μ. Vaginal bulb 84–100 μ in diameter. Egg measurements fall within the limits of variation as given in Part 29 of my Studies on the Helminth Fauna of Japan.

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