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NEMATODE PARASITES FROM *VESPERTILIO ORIENTALIS* WALLIN

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Three nematode parasites of *Vespertilio orientalis* are described. *Molinostrongylus tsuchiyai* sp. n. is characterized by a lack of synlophes, well-developed lateral alae (0.020~0.030 mm in width), and spicules with a spur-like structure. *Litomosa japonica* sp. n. is characterized by a very long esophagus (more than 0.8 mm long). *Litomosa* sp., female specimens, is differentiated from *L. japonica* sp. n. by a shorter esophagus and three caudal projections.

INTRODUCTION

In Japan, no record of *Litomosa* has been published, but two species of *Molinostrongylus* have been described. These species are *M. rhinolophi* YAMAGUTI, 1941, from *Rhinolophus ferrumequinum*[7] and *Miniopterus schreibersii*,[3,4] and *M. skrjabini longispicula* YAMASHITA et MORI, 1953 (*M. longispiculus* sensu DURETTE-DESSET et CHABAUD, 1975) from *Nyctalus maximus*.

Recently, eight adult female specimens of the oriental frosted bat, *Vespertilio orientalis* WALLIN, were obtained at Ashibetsu City, Hokkaido, Japan. From these, three nematode species were collected, one species of the genus *Molinostrongylus* SKARBILOVISCH, 1934, and two of the genus *Litomosa* YORKE et MAPLESTONE, 1926.

MATERIALS AND METHODS

Molinostrongylus was collected from the small intestines of 4 animals, the number of nematodes varied from 3 to a large number per animal. On the other hand, all the animals harbored *Litomosa* in the pulmonary artery, the right ventricle of the heart and the portal vein. The number of nematodes was 4 to 19 per animal, 83 in total, of which 80 were *Litomosa japonica* sp. n. and 3 were *Litomosa* sp.

The nematode specimens collected were fixed with 5% formalin solution, and were treated with lacto-phenol solution for microscopic examination.

All the specimens are deposited in the helminthological collection of the Department of Parasitology, Faculty of Veterinary Medicine, Hokkaido University.

RESULTS

1) *Molinostrongylus tsuchiyai* sp. n.

Host: *Vespertilio orientalis* WALLIN

Habitat: small intestine

Locality: Ashibetsu City, Hokkaido, Japan

Date collected: July 5, 1976

Description: Small nematode. Cuticle smooth, without synlophes. Lateral alae well-developed, 0.020 to 0.030 mm in width.

One male, body length 2.12 mm, width 0.052 mm. Cephalic vesicle 0.032×0.024 mm. Esophagus 0.200 mm in length. Nerve ring, excretory pore and cervical papillae 0.080, 0.148 and 0.148 mm from anterior end. Prebursal papillae long. Bursa symmetric, formula as shown in figures. Dorsal ray long, bifurcated at distal one fourth, and each branch trifurcate. Genital cone well-developed, two papillae. Spicules equal, weakly chitinized, 0.090 mm in length. Each spicule with an ala at inner side. Proximal half of spicule tubulous, distal half flattened dorso-ventrally showing single filiform distal end. One short spur-like structure at constricted protion between distal and proximal halves. Gubernaculum present, 0.060 mm in length. In another specimen, lengths of body, esophagus and spicules were 2.16, 0.240 and 0.120 mm, respectively.

One female, body length 2.8 mm, width 0.060 mm. Cephalic vesicle 0.032×0.024 mm. Esophagus 0.232 mm in length. Nerve ring, excretory pore and cervical papillae 0.104, 0.152 and 0.152 mm from anterior end. Anus and vulva 0.044 and 0.480 mm from posterior end. Caudal end trifurcate, with one thin spine of 0.025 mm length. Eggs 0.076×0.036 mm in size. In another specimen, anus and vulva 0.060 and 0.510 mm from posterior end.

Discussion: DURETTE-DESSET and CHABAUD (1975) divided the species of the genus *Molinostrongylus* into 5 groups, *ornatus*, *richardae*, *alatus*, *skrjabini* and *vespertilionis*. *M. tsuchiyai* belongs to the *skrjabini*-group because two lateral alae are present, the synlophe is lacking, the dorsal ray bifurcates having trifurcate branches and the distal end of spicule is not furcated. The *skrjabini*-group comprises 4 species; *skrjabini* SKARBILOVITSCH, 1934, *aelleni* DURETTE-DESSET et CHABAUD, 1975, *owyangi* DURETTE-DESSET et CHABAUD, 1975 and *longispiculus* (YAMASHITA et MORI, 1953) DURETTE-DESSET et CHABAUD, 1975. *M. tsuchiyai* is differentiated from other members of this group by very broad lateral alae and the morphology of the spicules.

2) *Litomosa japonica* sp. n.

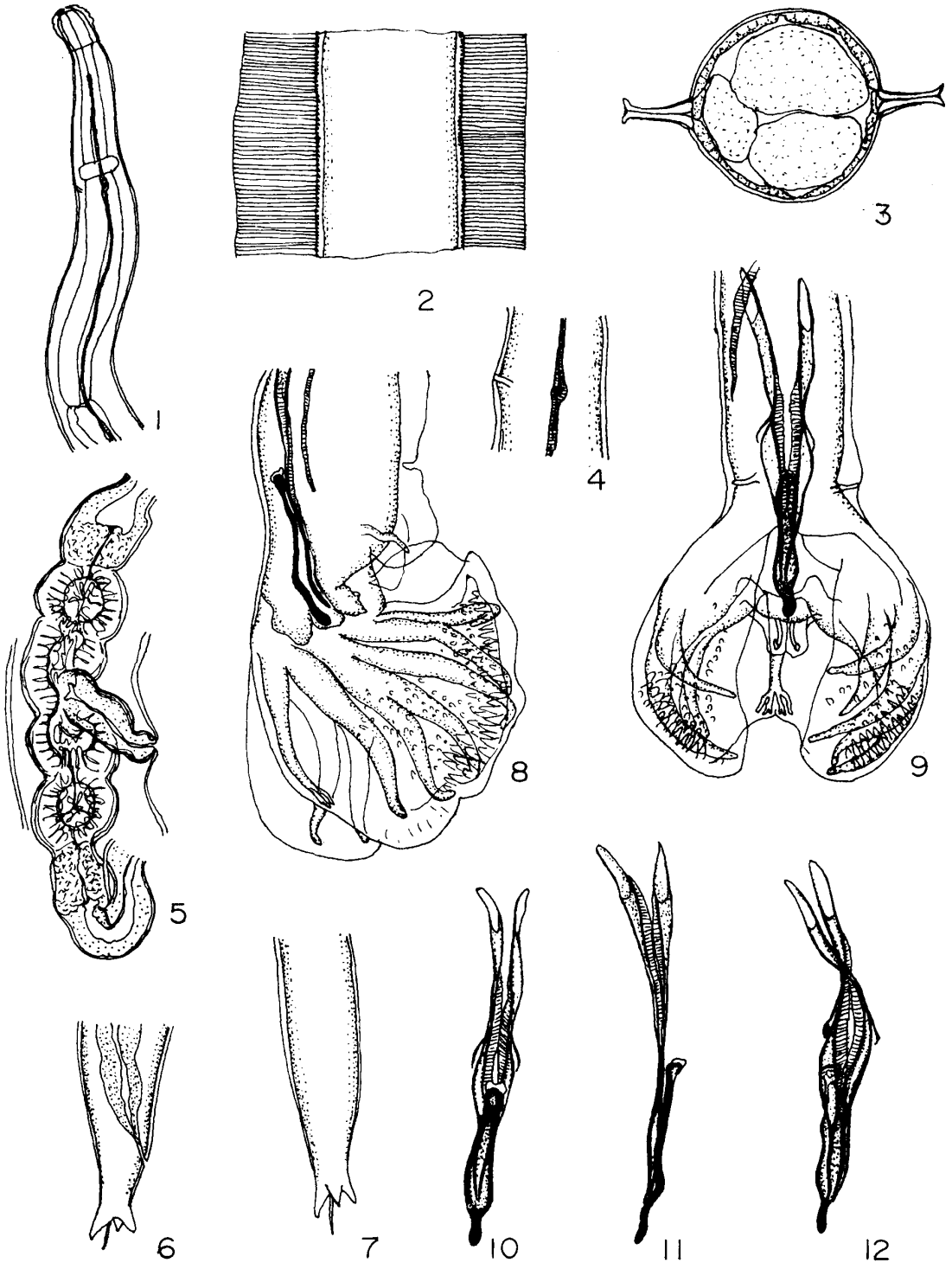
Host: *Vespertilio orientalis* WALLIN

Habitat: Pulmonary artery, right ventricle of heart and portal vein

Locality: Ashibetsu City, Hokkaido, Japan

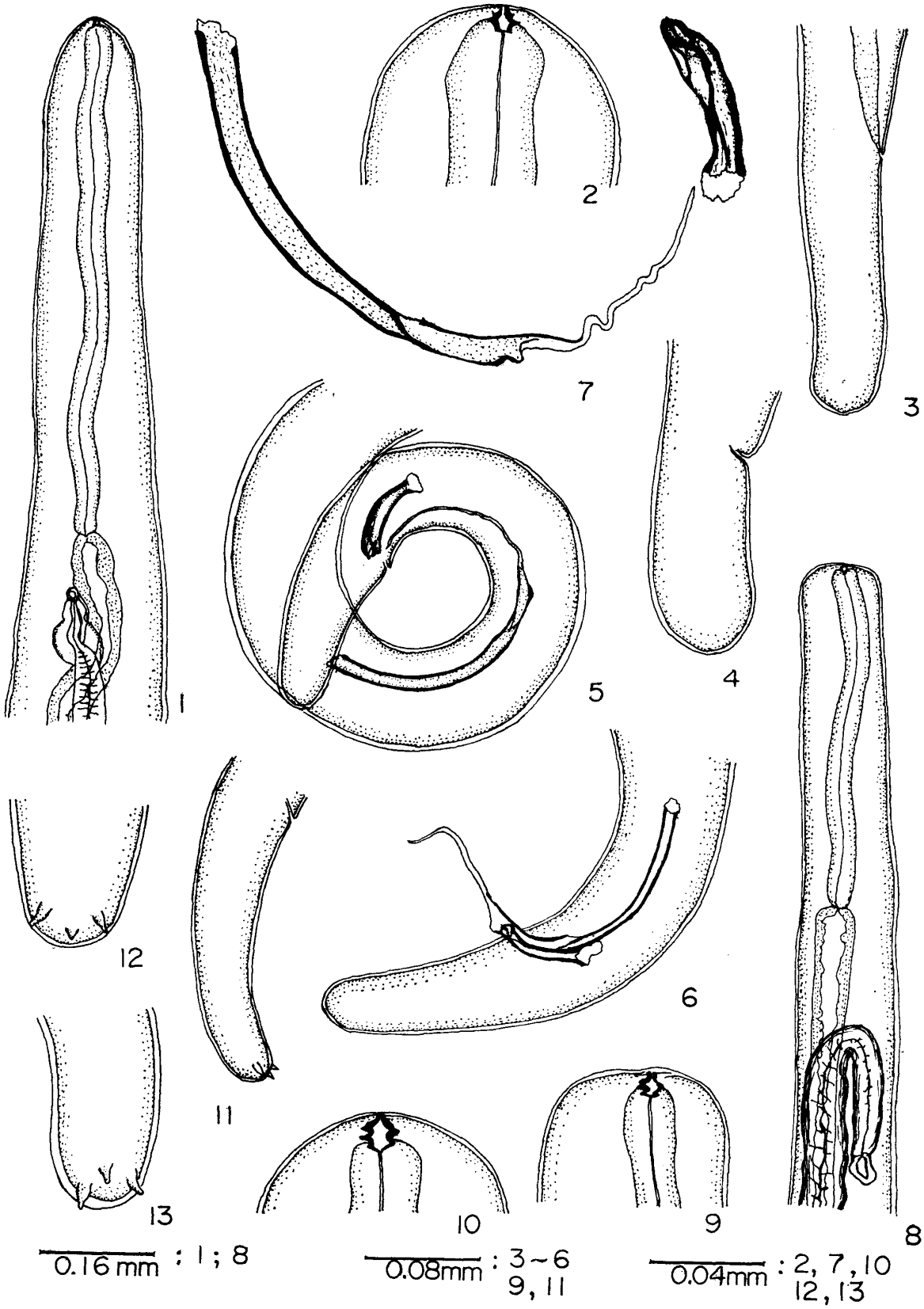
Date collected: July 5, 1976

FIGURE 1 *Molinostrongylus tsuchiyai* sp. n.



1 Anterior end of male, 2 Lateral alae, 3 Transverse section of body, 4 Excretory pore and cervical papillae, lateral view, 5 Vulval region, 6 & 7 Posterior end of female, 8 & 9 Bursa, spicules and gubernaculum, 10~12 Spicules and gubernaculum

FIGURE 2 *Litomosa japonica* sp. n. and *Litomosa* sp.



1~7: *Litomosa japonica*, 1 Anterior end of female, 2 Head, 3 & 4 Posterior end of female, 5 & 6 Posterior end of male, 7 Spicules, 8~13: *Litomosa* sp., 8 Anterior end of female, 9 & 10 Head, 11~13 Posterior end of female

Description: Filiform nematode. Cuticle smooth. Mouth cavity bottle-shaped, mouth capsule 0.008～0.012×0.008～0.016 mm in size.

Five males, 21.6～27.2 mm in body length, 0.248～0.330 mm in width. Esophagus long, 0.776～0.908 mm in length. Tail 0.100～0.160 mm in length. No rough area of cuticle at posterior ventral portion. Left spicule 0.268～0.306 mm in length, right spicule 0.076～0.088 mm in length. Caudal end blunt.

Five females, body length 20.1～28.3 mm, width 0.314～0.413 mm. Esophagus 0.842～1.056 mm in length. Vulva 0.707～0.990 mm from anterior end. Anus 0.160～0.264 mm from posterior end. Caudal end smooth and rounded, without any projections.

Discussion: This species is differentiated from the other species of the genus *Litomosa* by a strikingly long esophagus, and is also characterized by a single caudal end in the female and a lacking of the rough area in the male.

3) *Litomosa* sp.

Host: *Vespertilio orientalis* WALLIN

Habitat: Pulmonary artery, right ventricle of heart and portal vein

Locality: Ashibetsu City, Hokkaido, Japan

Date collected: July 5, 1976

Description: Three females, body length 23～36 mm, width 0.160～0.224 mm. Length of esophagus 0.480～0.677 mm. Vulva 0.582～0.924 mm from anterior end and length of tail 0.228 mm. At the caudal end, three spinous projections.

Discussion: Only three females were found among the specimens of *L. japonica*. This species is differentiated from *L. japonica* by the morphology of the mouth capsule as shown in the figures, and by a shorter esophagus and caudal projections.

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REFERENCES

1) BAIN, O. (1967): *Bull. Mus. natn. Hist. nat.*, Ser. 2, **38**, 928
2) DURETTE-DESSET, M.-C. & CHABAUD, A. G. (1975): *Annls Parasit. hum. comp.*, **50**, 303
3) KAGEI, N. & SAWADA, I. (1973): *Annotnes zool. jap.*, **46**, 53
4) KAGEI, N. & SAWADA, I. (1977): *Ibid.*, **50**, 174
5) SKRJABIN, K. I., SHIKOBALOVA, N. P. & SHULTS, R. S. (1954): (translated title) Essentials of nematodology, vol. 3. Moskow: Acad. Sci. USSR (in Russian)
6) SONIN, M. D. (1975): (translated title) Essentials of nematodology, vol. 24. Moskow: Acad. Sci. USSR (in Russian)
7) YAMAGUTI, S. (1941): *Jap. J. Zool.*, **9**, 409
8) YAMASHITA, J. & MORI, H. (1953): *Mem. Fac. Agric. Hokkaido Univ.*, **1**, 499 (in Japanese with English summary)