[Jap. J. Parasit., Vol. 28, No. 2, 43-50, 1979]

Studies on the Amphibian Helminths in Japan VI. *Pseudoxyascaris japonicus* n. g. and n. sp (Oxyascarididae; Nematoda) and *Pseudopolystoma dendriticum* (Monogenea; Trematoda) from a Salamander

AKIHIKO UCHIDA AND HIROSHI ITAGAKI

Department of Parsitology, Azabu Veterinary College. Fuchinobe, Sagamihara-shi, Kanagawa, Japan

(Received for publications; September 25, 1978)

Pseudoxyascaris japonicus n. g. and n. sp. (Nematoda; Oxyascarididae) was described from the small intestine of a salamander, *Onychodactylus japonicus*. The diagnostic features of the subfamily Oxyascaridinae were extended to accommodate the present new genus. Oxyascarididae was first established by Travassos (1920) based on *Oxyascaris oxyascaris* from the small intestine of a snake, *Drymobius bifoissatus*. Subsequently, Freitas (1958) divided the family into three subfamilies of Oxyascaridinae, Megalobatrachonematinae, and Subulascaridinae. Oxyascaridinae was further subdivided into two genera, *Pteroxyascaris* and *Oxyascaris*.

A specimen of *Pseudopolystoma dendriticum* was obtained from the urinary bladder of salamander, *O. japonicus*, and an attempt was made to redescribe the the species with its additional descriptions.

Materials and methods

A new species of nematode was collected from the small intestine of a salamander, *O. japonicus*, captured near Takeshi in Nagano Prefecture from 1973 to 1974. A monogenetic trematode was collected from the urinary bladder of a salamander of the same species as above captured near Hakone in Kanagawa Prefecture on 20 December 1977.

Five females and five males of the nematode preserved in 10% formalin were morphologically examined after clearing in lactophenol. An adult specimen of the monogenetic trematode was after fixed with alchohol and stained with carmine.

All the figures were drawn with the aid of the camera lucida. All the measurements in milimeters.

Pseudoxyascaris japonicus n. g. et n. sp.

The males obtained are matured and the females are young adults which contain no eggs in the uterus. The freshly collected worms are milky white and move slowly. Lateral flange absent. Oral pore enclosed by three un-developed lips. Esophagus muscular, followed by ventriculus consisting of anterior slender and posterior bulbous parts. Excretory canal opens at the level of posterior ventricular part (Figs. 2, 5, 11).

Male; Body 5.0–7.6 long, with a maximum width of 0.25–0.30 at its posterior half. Tail 0.4–0.6 long, tapering to a sharp point. Pseudosucker absent. Nerve-ring 0.36–0.38 from head end. Esophagus 0.86–1.1×0.56–0.60 in size. Anterior ventricular part 0.22–0.38×0.11–0.13 in size (Figs. 2, 6). Two spicules equal in length 0.43–0.45×0.013–0.013 in size, and protruded out of cloaca. four pairs of preanal and six pairs of postanal paillae present (Figs. 3, 4, 8, 9, 10).

Female; Body 10.0–15.8 long, with a maximum width of 0.3–0.5. Esophagus

0.95–1.12×0.065–0.070 in size. Anterior ventricular part measures 0.27–0.43×0.11–0.13 in size. Nerve-ring situated 0.41–0.43 from head end and the ratio of total body length to the distance between vulva and tail end was 3.0–3.1 : 1 (Figs. 1, 7).

Date of collection : 15 October 1973
Host : Salamander, *Onychodactylus japonicus*
Locality : Takeshi in Nagano Prefecture
Specimens : Holotype deposited in Meguro Parasitological Museum Coll. No. 19264 ; paratype in the author's collection

Pseudoxyascasis n. g.

Generic diagnosis ; Oxyascarididae ; Oxy ascaridinae. Oral pore enclosed by three un-developed lips, cephalic papillae present, esophagus muscular, followed by ventriculus, lateral flanges absent. Male ; Tail conical without alae. Preanal papillae a few and postanal ones several in number. Spicules equal. Female ; Vulva opens in the posterior half of body.

Parasitic in amphibians.

Type species- *Pseudoxyascaris japonicus* n. sp.

Key to genera of Oxyascaridinae

1. Lateral flanges present ; several paires of preanal and postanal papillae present, parasitic in amphibians... *Pteroxyascaris*
   Lateral flanges absent 2
2. A few pairs of postanal papillae present, vulva in anterior part of body, parasitic in reptiles and amphibians...*Oxyascaris*
   Several pairs of postanal papillae present, vulva in posterior part of boby, parasitic in amphibians.....*Pseudoxyascaris* n. g.

Pseudopolystoma dendriticum (Ozaki, 1948)

Body inverted heart-shaped, 3.1×1.8 in size and provided with a caudal disc at its posterior end (Figs. 12, 14). Caudal disc 1.5×1.1 in size, almost equal to body in width and provided with six suckers along its periphery, micro-hooks each posses in the sucker. There are four and six micro-hooks between the two posteriormost sucker and between the two anteriormost suckers, respectively but no macro-hooks present between the two posteriormost suckers not as in the species of *Polystoma* (Figs. 13, 14.)

Mouth opens ventrally at the anterior end of body. Pharynx pear-shape and esophagus absent. Digestive tract bifurcates into two main intestinal tracts just behind pharynx to attain the lateral margin of body and then the tracts run posteriorly to the ventral side of caudal disc. Main intestinal tracts each send about 10 diverticular not connected to each other.

Testes multilobulated, situated ventrally and occupy almost all the body posterior to ovary. Vasa efferentia reticular in appearance. Vesicula seminalis situated near intestinal bifurcation and opens externally as a cirrus with a coronet of 10 small and 10 larger spines. Ovary sub-semicircular in shape and 0.52×0.25 in size and situated behind intestinal bifurcation on the right or left of the median line of body. Vagina not present. Vitellaria consist a vast of follicles and occupy almost all body posterior to pharynx.

Date of collection : 20 December 1977
Host : Salamander, *Onychodactylus japonicus*
Habitat : Urinary bladder
Locality : Hakone, Kanagawa Prefecture
Specimens : Neotype deposited in author's collection

Discussion

The nematodes obtained were assigned to the family Oxyascarididae which was established by Travassos in 1920 based on a species of nematode, *Oxyascaris oxyascaris*, from the small intestine of a snake, *Drymobius bifoissatus*. Consequently, Freitas (1958) subdivided this family into three subfamilies, Oxyascaridinae, Megalobatrachonematinae and Subulascaridinae. The present species evidently belongs to the subfamily Oxyascaridinae which has, up to now, been subdivided into two genera, *Pteroxyascaris* and *Oxyascaris*.

The genus *Pteroxyascaris* is characterized

日本産両生類の寄生虫相
(第6報) ハコネサンショウオ *Onychodactylus japonicus* より得た新線虫 *Pseudoxyascaris japonicus* および単生目吸虫 *Pseudopolystoma dendriticum* の再記載

内田明彦　板垣　博
(麻布獣医科大学寄生虫学教室)

1973～1974年にかけて，長野県小県郡下武石附近から採取したハコネサンショウオを剖検した所，小腸より線虫が発見された。この線虫は形態上，Oxyascaridiidae 科の Oxyascaridinae 亜科に入る．本亜科はさらに2属（*Pteroxyascaris*, *Oxyascaris*）に分けられるが乳頭数，陰門の位置などから上記の属には含まれず，新属新種として発表する．

一方，1977年12月，神奈川県箱根町より採取したハコネサンショウオの膀胱より一吸虫を見出し，観察の結果，単生目の Polystomatidae 科の *Pseudopolystoma dendriticum* と同定された．本種は，1943年尾崎が四国産ハコネサンショウオより報告しており，今回の調査から新分布地として追加する．また尾崎は尾盤の小鉤の総数を10本としているが本種は16本である．さらに尾崎の標本が現在不明であるため，今回得た虫体を新模式種として設定する．

by the following features the lateral flanges are present, vulva is situated in the anterior part of body, preanal and postanal papillae are in several pairs, respectively and spicules are truncated in their basal part. The genus *Oxyascaris*, on the other hand, has the following features; no lateral flanges are present, the vulva is situated in the anterior part of body and the preanal and postanal papillae are in few pairs.

The present species has the characteristics different from those of the preceeding two genera, that is, no lateral flanges are present, the vulva is situated in the posterior half of body, a few pairs of several pairs of postanal papillae are present and the basal part of spicule is knob-like in shape. Consequently, it will be reasonable for the present species to be assigned to a new genus *Pseudoxyascaris* and a new species *japonicus*.

Pseudopolystoma dendriticum was first described as *Polystoma dendriticum* by Ozaki in 1948 from the urinary bladder of a salamander, *Onychodactylus japonicus*. Subsequently, Yamaguti (1963) transferred this species to a new subfamily Pseudopolystomatinae and a new genus *Pseudopolystoma* was established by him based on its feature that no vagina was pesent. After then, no reports have been published on this species and on any other additional species of the genus *Pseudopolystoma*.

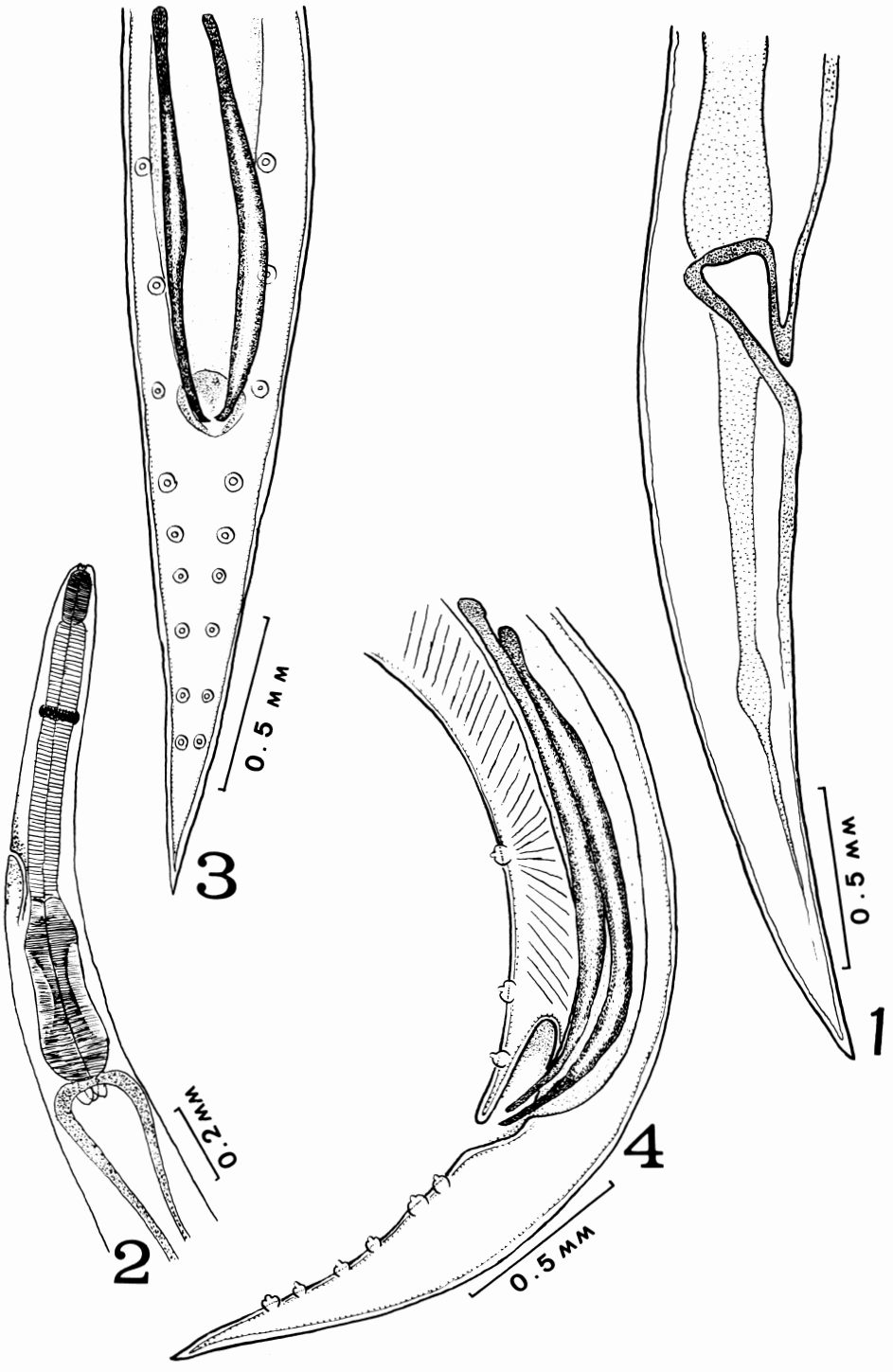
The authors have been unable to locate the Ozaki's material, so they wish to make their material the neotype and to redescribe this species with some additional descriptions that six micro-hooks are present between the two anteriormost suckers, so the larval hooks being 16 in total number.

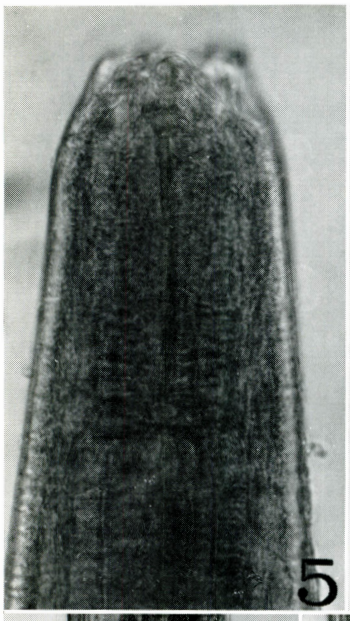
Acknowledgement

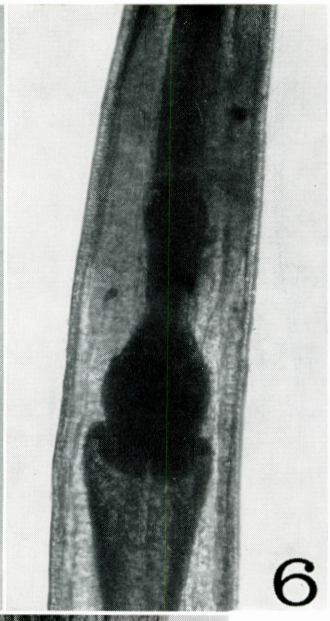
The authors are grateful to Mr. Taketo Takahashi, Kenji Takahashi and Tokio Yamamoto for the gift of the material.

References

1) Freitas, J. F. (1958): Breve nota sobre alguus nematodeos de repteis e amfibios. Memo. Inst. Oswaldo Cruz., 56, 489-515 (P1 1-22).
2) Ozaki, Y. (1948): A new trematode, *Polystoma dendriticum* from the urinary bladder of *Onychodactylus japonicus* in Shikoku. Biosphaera, 2, 33-37.
3) Travassos, L. (1920): Contribuicoes parao conhecimento da fauna helmintologica brasileira, Oxyascarididae n. fam. Arch. Esc. Sup. Agric. Med. Vet., 4, 17-20.
4) Yamaguti, S. (1961): Systema Helminthum. Vol 3. The nematodes of Vertebrates. Interscience Publishers, U.S.A. 1-1261 pp.
5) Yamaguchi, S. (1963): Systema Helminthum. Vol 4. Monogenea and Aspidocotylea, Interscience Publishers, U. S. A. 1-699 pp.

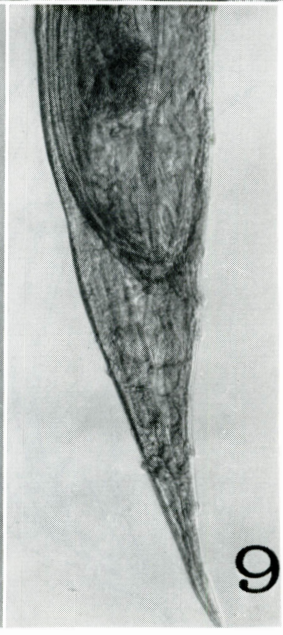

0.5 мм
3
0.2мм
2
0.5 мм
4
0.5 мм
1

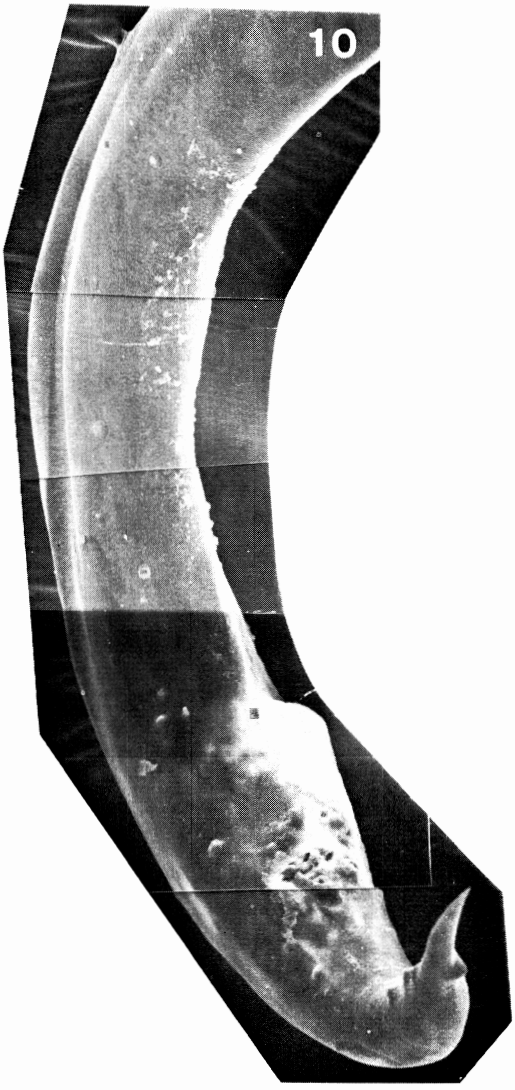

5

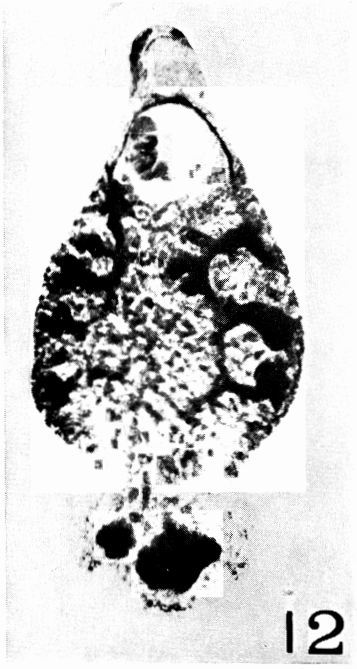

6

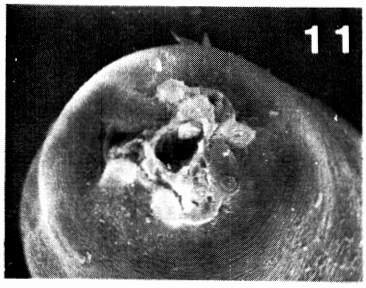

7

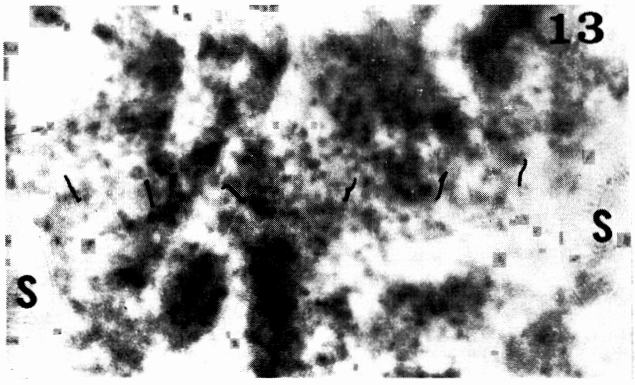

8

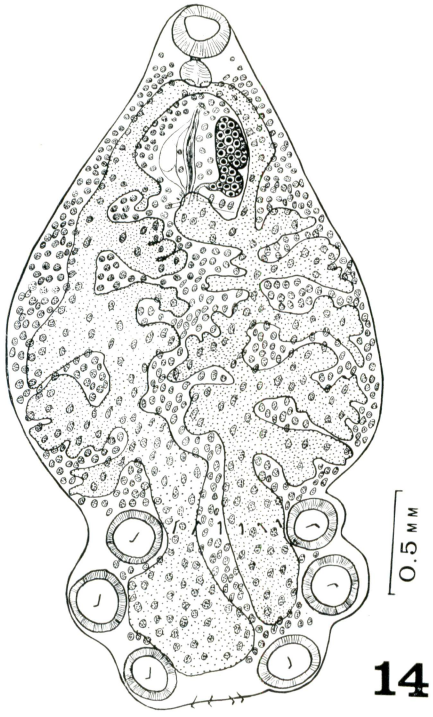

9


10


12


11


13
S
S



Explanation of Figures

Figs. 1–11 *Pseudoxyascaris japonicus* n.g. n.sp.
1 and 7 Posterior end of female.
1, 5 and 6 Anterior portion of a male showing muscular esophagus, ventriculus, nerve-ring and excretory system.
3 and 8 Posterior end of male (ventral view).
4 and 9 〃 (lateral view).
10 Scanning electron micrographs of tail of male.
11 Scanning electron micrographs of head.
Figs. 12–14 *Pseudopolystoma dendiriticum*
12 and 14 Adult worm (ventral view).
13 Microhooks on the caudal disc.