

Studies on the Amphibian Helminths in Japan
VII. *Rhacophotrema itagakii* n. g. et n. sp. and
***Opisthioglyphe japonicus* n. sp. (Digenea :**
Omphalometridae) from Frogs

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The species of the family Omphalometridae are widely distributed in Europe, Asia, Africa, North and South Americans and Australia and parasitize the intestine of amphibians, reptiles, birds and mammals. None of the Japanese amphibian species have been reported to be parasitized by the flukes of Omphalometridae.

Rhacophotrema itagakii n. g. et n. sp. of the family Omphalometridae is described from the small intestine of jumping frog *Rhacophorus buergeri* and in addition a new species of the genus *Opisthioglyphe*, *O. japonicus* from the small intestine of frogs, *Rana japonica*, *R. rugosa*, *R. nigromaculata* and *R. tagoi* in Fukushima, Niigata, Aomori and Nagano prefectures.

Materials and Methods

Jumping frogs, *Rhacophorus buergeri* were captured in Kagawa Prefecture from 1977 to 1978 and *Rana japonica*, *R. rugosa*, *R. nigromaculata* and *R. tagoi* in Nagano, Fukushima, Aomori and Niigata prefectures from 1974 to 1979. Adult flukes obtained were mounted after being fixed in 70% alcohol and stained with carmin and Heidenhain hematoxylin. All the figures were drawn with the aid of a camera lucida. All the measurements are represented in mm unless otherwise noted.

Descriptions of the species

Rhacophotrema itagakii n. g. et n. sp.
(Figs. 1, 2)

Body elongate, 1.9-3.4 in length and 0.68-0.98 in maximum width. Body covered with cuticle, but not with minute cuticular spines. Oral sucker muscular, 0.18 by 0.26 in size, smaller than acetabulum (0.27 by 0.35) which situated on median line in anterior fourth of body. Prepharynx very small, 0.006-0.009 long. Pharynx well developed and muscular, 0.12-0.16 in diameter. Esophagus very long, 0.1-0.35 in length. Intestinal bifurcation situated about level of acetabulum. Ceca terminate near posterior end of body.

Testes subelliptical or ovoid, situated in posterior half of body between ceca, arranged tandem or slightly obliquely to each other. Anterior testis 0.19-0.35 by 0.25-0.36, and the posterior 0.22-0.39 by 0.26-0.44 in size. Cirrus pouch very long, cylindrical, extending from near anterior end of ovary to genital pore which opens on anterolateral border of body. Seminal vesicle cylindrical, occupying more than posterior two thirds of cirrus pouch. Pars prostatica well developed.

Ovary subspherical or ovoid, 0.15-0.29 in diameter, situated anterolateral to anterior testis. Mehlis' gland situated near the ovary. Seminal receptacle present, 0.03-0.05 by 0.05-

0.12 in size. Laurer's canal present. Uterus undulates in intercecal space between acetabulum and ovary and ends in genital pore through metraterm. Vitellaria follicular, occupying almost all lateral fields of body and intercecal space behind posterior testis.

Excretory vesicle Y-shaped, diverging at anterior border of anterior testis. Eggs yellowish-brown, 0.038–0.050 by 0.025–0.035 in size.

Date: 3 Aug. 1977

Host: Jumping frog, *Rhacophorus bu-regeri*

Habitat: Small intestine

Locality of type material: Kagawa Prefecture, Japan

Holotype: Meguro Parasitological Museum Coll. No. 19279

Paratypes: In the authors' collection

Etymology: This species is named in honor of the late Professor Dr. Shiro Itagaki in recognition of his contributions to veterinary parasitology.

Diagnosis of *Rhacophotrema* n. gen:

Body elongate, not spinose. Pharynx well developed. Esophagus very long. Ceca terminate near posterior end of body. Testes tandem, situated in posterior half of body. Cirrus pouch and vesicula seminalis well developed, cylindrical or elongated, starting at a short distance anterior to ovary. Genital pore opens on antero-lateral border of body. Seminal receptacle and Laurer's canal present. Vitellaria follicular, extending up to a level of pharynx. Uterus undulates between ovary and acetabulum. Excretory vesicle Y-shaped.

Type species: *R. itagakii*

Opishtioglyphe japonicus n. sp.

(Figs. 3–5)

Body elongate, 0.90–1.85 long and 0.38–0.70 wide at level of ovary or acetabulum, provided with minute spines on surface. Oral sucker subterminal, 0.095–0.19 in diameter. Prepharynx very short. Pharynx well developed, 0.027–0.039 in diameter. Esophagus

short. Ceca parallel to the sides of body and end near posterior extremity of body.

Testes subspherical and unfolded, situated in the posterior third or fourth of body and obliquely to each other; anterior testis 0.085–0.11 and the posterior 0.092–0.10 in diameter. Cirrus pouch cylindrical originating near posterior margin of acetabulum. Seminal vesicle elongate, enclosed in cirrus pouch and about one half of the pouch in length. Genital pore opens on median line of body between intestinal bifurcation and acetabulum.

Ovary subglobular, 0.13–0.18 and 0.12–0.25 in both diameters, situated in anterior half of body, overlapping with acetabulum in part. Seminal receptacle spherical, situated just behind ovary. Laurer's canal present. Vitellaria well developed, composed of many follicles and distributed almost all over the body except intercecal space between testes and ovary and perioral area. Excretory vesicle Y-shaped. Eggs yellowish brown, 0.03–0.033 by 0.018–0.022 in size.

Date: 10 Oct. 1974 (type host)

Host: Frogs, *Rana japonica* (type host), *R. rugosa*, *R. tagoi* and *R. nigromaculata*

Habitat: Small intestine

Localities: Fukushima (type locality), Niigata, Aomori and Nagano prefectures, Japan

Holotype: Meguro Parasitological Museum Coll. No. 19280

Paratype: In the authors' collection

Discussion

The family Omphalometridae erected by Bittner and Sprehn (1928), contains 15 genera including the new genus *Rhacophotrema*. Yamaguti (1974) divided the family Omphalometridae into two subfamilies Opisthiotremioidine and Omphalometrinae according to whether the cloaca is present or not. The species of Omphalometrinae are parasitic in the small intestine of amphibians, reptiles, birds and mammals. The geographical distribution of Omphalometrinae is world-wide and a few species of this subfamily have

been reported in Japan from mammals (Miyata 1940, Ozaki 1931) but not from any other hosts. The new genus *Rhacophotrema* has the diagnostic features of the subfamily Omphalometrimae. Omphalometrinae is classified into 14 genera by the morphology of cirrus pouch, pharynx and esophagus and the position of testis. The known genera most akin to *Rhacophotrema* are *Maicuru* and *Kaurma*. The genus *Maicuru* can be distinguished from *Rhacophotrema* by the presence of prepharynx and esophagus, the arrangement of testes and the position of genital pore, and the genus *Kaurma* can be made by the differences in the length of esophagus, the size and position of cirrus pouch and the form of seminal vesicle, and in host species.

The species of the genus *Opisthioglyphe* are widely distributed in Europe, Africa and Asia and 13 species of the genus have been known from amphibians and reptiles. The new species *O. japonicus* is akin to *O. ranae* and *O. orientalis* but differs from *O. ranae* in the length of esophagus and pharynx, the relative size of oral sucker to acetabulum, the position of ovary and cirrus pouch, the distribution of vitellaria, and the size of egg. *O. japonicus* can be discriminated from *O. orientalis* by the relative size of the oral sucker to acetabulum, the position of vitellaria, ovary and cirrus pouch, the size of

egg and the difference in host species.

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日本産両生類の寄生虫相
 (第7報) カジカガエル *Rhacophorus buergeri* より得た新吸虫
Rhacophotrema itagakii および各種両生類より得た
 新吸虫 *Opisthioglyphe japonicus*

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1977-1978年にかけて、香川県内から採取したカジカガエルを剖検したところ、小腸より吸虫が発見された。この吸虫は形態上 Omphalometridae 科の Omphalometrinae 亜科に入る。本亜科はさらに13属に分けられるが、前咽頭、食道、貯精囊等の形態が既知属と異なることから新属新種として発表する。

一方、1973-1979年にかけて、日本各地の両生類、ツチガエル(新潟県)、トノサマガエル(青森県)、ニホンアカガエル(福島県)、タゴガエル(長野県)の小腸より、小

さな吸虫が見いだされ、この吸虫は形態上、Omphalometridae 科の Opisthioglyphe 属の特徴を備えており、本属には13種報告があり、そのうちの *O. ranae* と *O. orientalis* と似ているが、*O. ranae* とは、食道、咽頭の長さおよび口吸盤、腹吸盤の大きさおよび卵黄巣の分布域が異なる点から、新種として発表する。

両生類寄生の Omphalometridae 科吸虫の報告は、日本では全くなく、今回の調査により、日本にも分布していることが明らかとなった。

Explanation of Figures

1-2. *Rhacophotrema itagakii* n. g. n. sp.

Fig. 1 Entire worm, ventral view. MPM. Coll. No. 19279

Fig. 2 Terminal genitalia, ventral view. MPM. Coll. No. 19279. Holotype

3-5. *Opisthioglyphe japonica* n. sp.

Fig. 3 Entire worm, ventral view. MPM. Coll. No. 19280 Holotype. (from *R. japonica*)

Fig. 4 Entire worm, dorsal view. Paratype (from *R. rugosa*)

Fig. 5 Entire worm, ventral view. Paratype (from *R. tagoi*)

