

RESEARCH NOTE

Host-parasite relationships between *Paragonimus ohirai* and various crabs. I. Morphology of the metacercariae parasitic in *Sesarma (Holometopus) dehaani* and *S. (H.) haematocheir*

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According to Miyazaki (1974), 25 species belonging to the genus *Paragonimus* have been found in the world. In Japan, five species of the lung flukes, viz., *P. westermani*, *P. ohirai*, *P. iloktsuenensis*, *P. miyazakii* and *P. sadoensis* have been known up to date. *P. ohirai* metacercariae are found in the liver, and in the body and leg muscles of the brackish water crabs, *Sesarma (Holometopus) dehaani*, *S. (H.) haematocheir*, *S. (Sesarma) intermedium*, *Helice tridens tridens* and *Chasmagnathus convexus*.

The ecological characteristics of the crabs mentioned above are similar (Hashiguchi and Miyake, 1967 a, b) but, in spite of this similarity, the infection rates of the crabs and/or the recovery rates of the metacercariae tend to vary with the host species.

No investigation, however, has been done to demonstrate the morphological variations of *P. ohirai* metacercariae, in the different species of the crab. Therefore, the present investigations were designed to compare the morphological features of *P. ohirai* metacercariae parasitic in *S. (H.) dehaani* and *S. (H.) haematocheir*. Special emphasis was given to the size difference of the metacercariae recovered from the two crabs and/or from the different organs of the host.

Metacercariae of *P. ohirai* were derived from the experimental infection of the brackish water crabs, *S. (H.) dehaani* and *S. (H.) haematocheir*, and also obtained from naturally infected crabs. The encysted and/or excysted metacercariae obtained were measured under the microscope, without the pressure of a coverglass. The larvae were made to excyst by maintaining them at 37°C for 24 hours in petri dishes containing physiological saline.

The metacercariae of *P. ohirai* were found in the liver, body muscles, leg muscles and genital organs of both species of crabs. The recovery rate from the liver was 73.5% in *S. (H.) dehaani* 43 and 75 days after infection and 54.5% in *S. (H.) haematocheir* 75 days after the exposure to *P. ohirai* cercariae.

The encysted metacercariae obtained from the two crabs, *S. (H.) dehaani* and *S. (H.) haematocheir* were clearly differentiated in size.

Plate I shows that the encysted metacercariae from *S. (H.) haematocheir* 75 days after exposure was more elongate in shape than those from *S. (H.) dehaani* of the same age. Similar size differences were also found in encysted larvae recovered from *S. (H.) dehaani* after different periods of infection; the ratio of the length per width of inner cysts (L/W ratio) was 1.25 ± 0.21 in 43-day-old metacercariae, and 1.50 ± 0.10 in 75-day-old larvae.

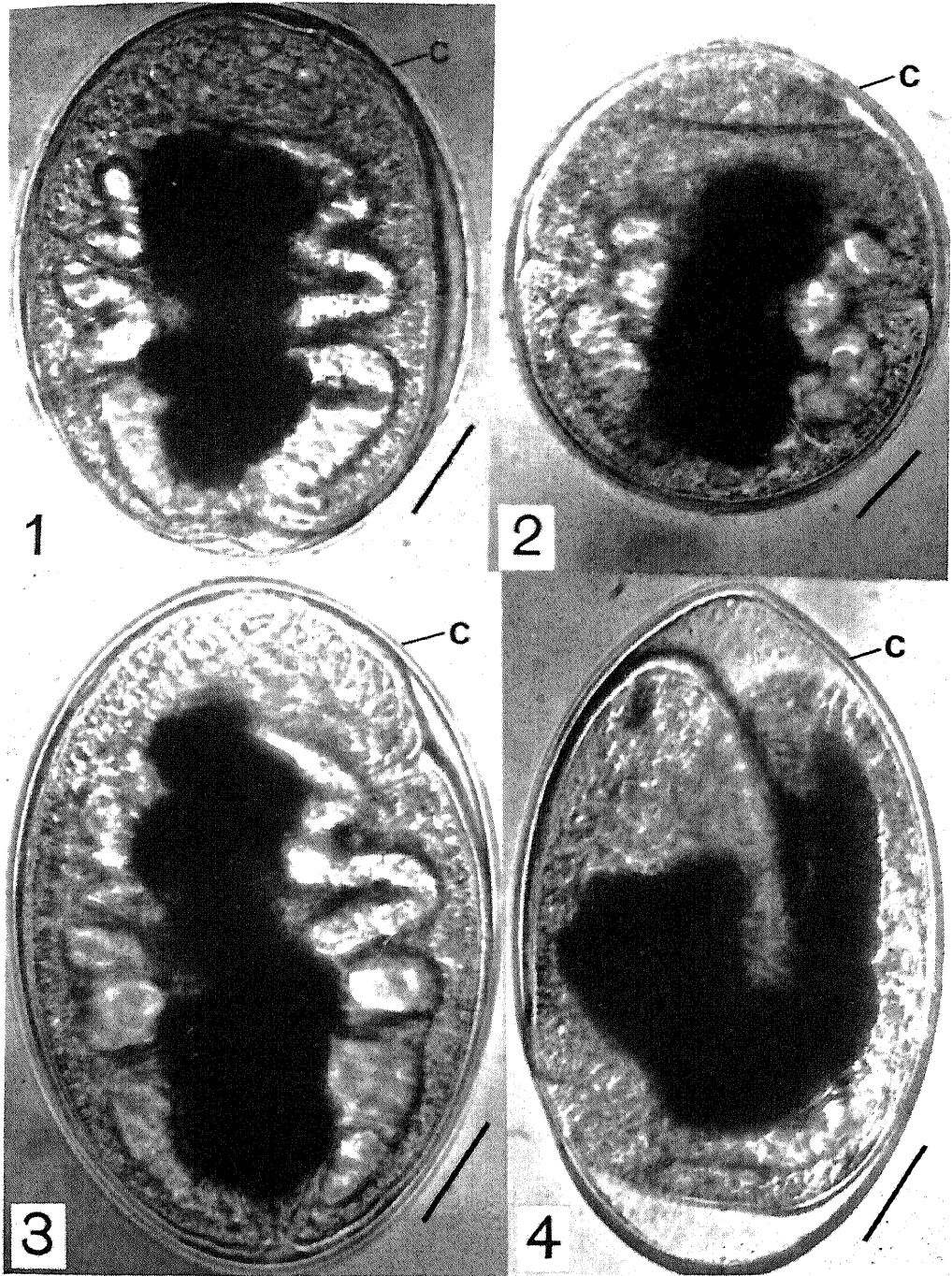


PLATE : Metacercariae of *Paragonimus ohirai* from *Sesarma (Holometopus) dehaani* and *S. (H.) haematocheir* infected experimentally (Scale: 50 microns). C = Inner cyst wall of the encysted metacercariae.

FIG. 1 and FIG. 2 Metacercariae of *Paragonimus ohirai* from *S. (H.) dehaani*; 43 days after the cercarial exposure. FIG. 3 Metacercariae of *Paragonimus ohirai* from *S. (H.) dehaani*; 75 days after the cercarial exposure. FIG. 4 Metacercariae of *Paragonimus ohirai* from *S. (H.) haematocheir*; 75 days after the cercarial exposure.