

Paratelphusa Ceylonensis and *Paratelphusa rugosa* as crab hosts of the human lung fluke *Paragonimus westermani* (Kerbert, 1878) in Ceylon.

by

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Though *Paragonimus westermani* adults were described in Ceylon from wild carnivores (Dissanaike and Paramanathan, 1962) the crab hosts for metacercariae which are the form, infective to man and animals, have not been definitely established. Dissanaike (1969) found certain metacercariae from *Paratelphusa ceylonensis* in 1963 from Wilpattu area which he identified as *P. westermani*. Subsequently, Miyazaki (1969a) who examined 131 fresh-water crabs in our department in 1968, collected for him from several places in Ceylon, found a single specimen of *Paratelphusa rugosa* infected with two *Paragonimus* metacercariae from a paddyfield in Peradeniya area, which he reported as those of *P. westermani* (Miyazaki, 1969b). However, there is no definite proof of the species, as adults were not obtained by experimental infection in both instances. In this paper we definitely establish *P. ceylonensis* Fernando, 1960 and *P. rugosa* (Kingsley, 1880) as the second intermediate hosts of *P. westermani*.

25 specimens of *P. ceylonensis* (Plate I A) collected in a stream near the 33/1 mile post on Habarana-Polonnaruwa road at Minneriya in the North Central Province were examined for *Paragonimus* metacercariae. 3 out of the 25 crabs harboured a globular metacercaria, (Plate I C) chiefly in the hepatopancreas in addition to other parasites. They were devoid of the outer cyst wall at the time of collection, and had a thick inner cyst wall. The inner cyst of 3 specimens measured 294.6/300.6 μ , 277.8/285.2 μ and 286.9/276.2 μ respectively. 8 specimens that were collected, out of which two were of doubtful viability, were fed to a cat. *Paragonimus* ova showed their presence in about 7 weeks. The cat was examined on the 53rd day. There were 2 cysts in the right lung and one in the left lung (Plate II A.) There was one small worm in the right pleural cavity and each cyst had 2 worms. Seven worms were recovered in all. The high percentage of adults recovered shows that the cat was a highly susceptible host.

The flukes were all provided with singly spaced cuticular spines. All except one had a 6 lobed ovary, the remaining specimen being 5 lobed. The testes were simply branched and almost the same size as the ovaries. The oral sucker was slightly larger than the ventral sucker. Some of the eggs in the stained specimens showed thickening of the anopercular pole. From these features these flukes were identified as *P. westermani* (Plate II B). They were morphologically similar to the specimens of *P. westermani* recovered from the two leopards and the rusty spotted cat by Dissanaike and Paramanathan in 1962 and also to known Japanese specimens with which they were compared.

Subsequently morphologically similar metacercariae to those from the stream at Minneriya were collected from *P. rugosa* (Plate I B) from a jungle stream at Siyambalanduwa in the Uva Province.

The metacercariae of *P. westermanni* from *Eriocheir japonicus* and *Potamon dehaani* are described as measuring around $400/\mu$ in diameter. The ones that we have collected from the above 2 areas in Ceylon are smaller ranging from $276.2-300.6/\mu$ in diameter. These are closer in size to the metacercariae of *P. westermanni* reported from *P. maculata* in Malaysia (Miyazaki, Kawashima, and Tan, 1968). However from the morphology of the adults there is no doubt that the species is *P. westermanni*.

SUMMARY

The freshwater crabs *P. ceylonensis* and *P. rugosa* collected from jungle streams in Minneriya (North Central Province) and Siyambalanduwa (Uva Province) respectively harboured *Paragonimus* metacercariae, which on feeding to a cat gave rise to adults with the morphological characters of *P. westermanni*. Hence we record the above two species of crabs as the second intermediate hosts for this infection in Ceylon.

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EXPLANATION OF PLATES

PLATE I

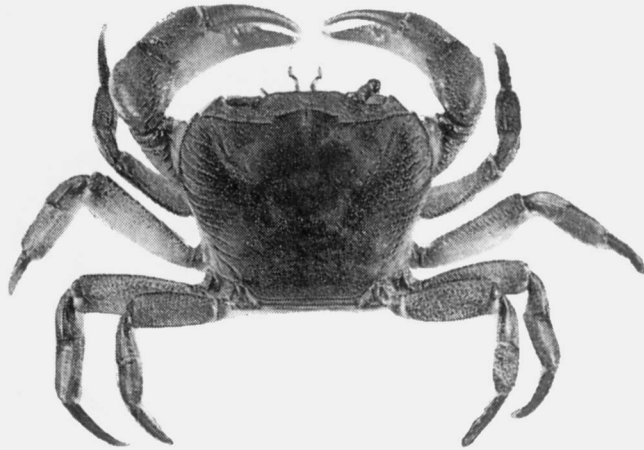
- A. *Paratelpusa ceylonensis* showing the anterior branchial region free of striations.
- B. *Paratelpusa rugosa* showing striated anterior branchial region
- C. The metacercaria of *Paragonimus westermanni*

PLATE II

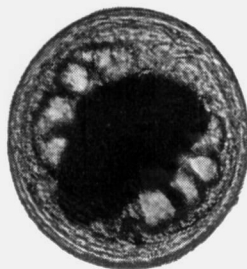
- A. The lung of experimental cat showing *Paragonimus* cysts.
- B. *Paragonimus westermanni* from experimental cat.



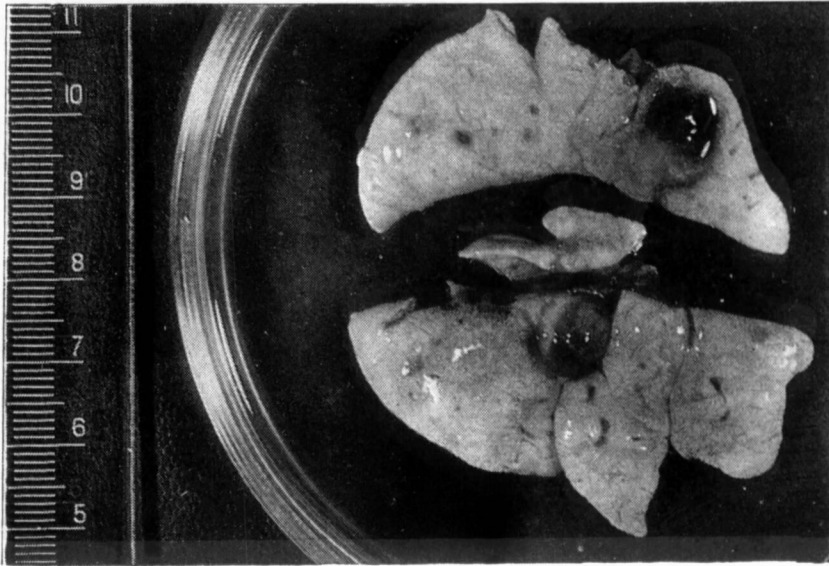
A



B



C



A



B