

Research Note

**Metacercariae of *Clinostomum complanatum* Found from
New Fish Hosts, *Lateolabrax japonicus* and *Leuciscus hakonensis***

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(Accepted August 22, 1995)

Key words: *Clinostomum complanatum*; second intermediate host; *Lateolabrax japonicus*; *Leuciscus hakonensis*; metacercaria.

Metacercariae of *Clinostomum complanatum* are known to lie embedded in the tissues of freshwater fish. This species has been recorded from fish in various areas of the world. Nine species of fish (*Carassius carassius*, *Carassius gibelio langsdorfi*, *Carassius cuvieri*, *Cobitis anguillicaudatus*, *Cyprinus carpio*, *Pseudogobio esocinus*, *Pseudorasbora parva*, *Rhodeus lanceolatus* and *Rhodeus ocellatus*) were found as the second intermediate host of this fluke in Japan (Yamaguti 1933, 1938; Aohagi *et al.*, 1992). The present paper describes *C. complanatum* metacercariae found from the new second intermediate host, *Lateolabrax japonicus* and *Leuciscus hakonensis*.

During the period from January 1991 through August 1993, 91 *L. japonicus* (13.9–20.5cm in body length) and 96 *L. hakonensis* (7.6–25.0cm in body length) were collected at Koyama Pond in Tottori City, and 2 and 6 individuals were infected with *Clinostomum* metacercariae, respectively. The number of metacercariae per fish was 1 to 5. The encysted metacercariae were removed from the body muscles, tissues around the gills and pharynx of the infected fish.

The encysted metacercariae were yellowish in

color, spherical or elliptical in shape and measured 1.27–2.91mm in length. These metacercariae were excysted in artificial gastric juice (distilled water 100ml, pepsin 0.1g, HCl 0.7ml; pH 1.3). The excysted metacercariae were flattened, fixed in 70% alcohol and stained with Borax-carmin.

The morphological features and measurements of the excysted metacercariae were as follows. Metacercariae linguiform with a slight constriction at the level of ventral sucker, 2.65–6.28×0.81–1.54mm. Tegument wholly covered with minute single spines. Oral sucker elliptical, subterminal of the anterior extremity of body, 0.169–0.278×0.213–0.417mm. Ventral sucker spherical, situated in the anterior third of body, 0.485–0.903mm in diameter. Mouth encircled by oral sucker, led into esophagus. Typical pharynx absent. Esophagus bifurcated in front of ventral sucker. Intestines run laterally, then turned posteriorly, diverticulated externally and internally behind the region of ventral sucker, reached to near posterior extremity of body, united at their distal ends to excretory vesicle. Genital organs immature. Testes tandem, roughly triangular with several small lobes. Anterior testis situated in middle body. Posterior testis in the anterior part of the posterior third of body. Cirrus pouch elliptical, situated on the right side of anterior testis. Ovary elliptical or spherical, intertesticular, situated just beneath cirrus pouch. Uterus coiled in the intertesticular space, run along the left side of anterior testis, connected with uterine sac in front of anterior

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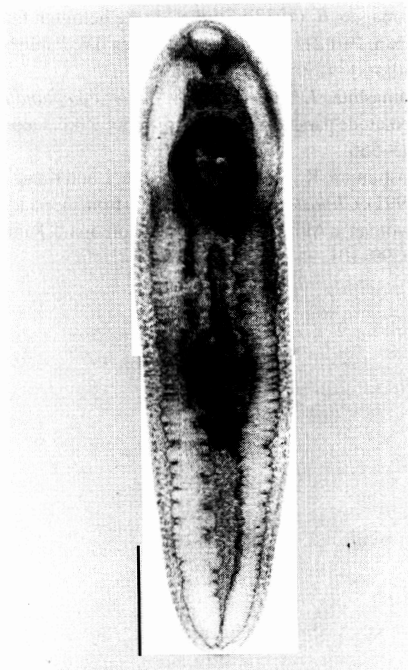


Fig. 1 Excysted metacercaria of *Clinostomum complanatum* obtained from the body muscle of an infected fish (*Leuciscus hakonensis*), dorsal view. Bar: 1mm.

testis. Uterine sac extended anteriorly to a slight distance behind ventral sucker. Genital pore situated between anterior testis and right intestine at the level of the equator of anterior testis.

The morphological features and measurements of the present metacercariae corresponded with those of *C. complanatum* metacercariae described by Yamaguti (1933), Kagei *et al.* (1984) and Aohagi *et al.* (1993). Therefore, these metacercariae were identified as *C. complanatum*. *C. complanatum* is found in *L. japonicus* and *L. hakonensis* for the first time.

In Tottori Prefecture, *C. complanatum* has been found in *Carassius* spp. from some ponds and rivers (Aohagi and Shibahara, 1994), suggesting that *C. complanatum* was widely distributed in Tottori Prefecture. Koyama Pond is located in the western part of Tottori Prefecture and has an area of 6.8 square kilometers. Approximately 30 species of fish inhabit in Koyama pond (Nomura, 1993). Among them, 6 species of fish (*C. gibelio langsdorfi*, *C.*

cuveri, *C. carpio*, *P. parva*, *R. lanceolatus* and *R. ocellatus*) have been reported to serve as the second intermediate host of *C. complanatum* (Aohagi *et al.*, 1992).

It is known that *C. complanatum* is one of the causative agents of human parasitic laryngopharyngitis (Witenberg, 1944). Seven human cases of infection with this fluke have been reported in Japan (Yamashita, 1938; Hori, 1942; Hirai *et al.*, 1987; Umezaki *et al.*, 1990; Yoshimura *et al.*, 1991; Kifune and Kousaka, 1994; Kifune *et al.*, 1994). These cases occurred after having eaten raw freshwater fish. *L. japonicus* and *L. hakonensis* are occasionally caught by local inhabitants and eaten raw. Therefore, special attention should be paid to this metacercaria in these fish.

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