Flame-Cell Formula of a Cystophorous Cercaria, *Cercaria yoshidae* (Trematoda: Hemiuridae)

Takeshi SHIMAZU and Chizuru SHIMIZU

Nagano-ken Junior College, 49-7 Miwa 8-chome, Nagano 380, Japan

Abstract The flame-cell formula of a cystophorous cercaria, *Cercaria yoshidae* Cort et Nichols, 1920, found in *Semisulcospira libertina* at Nagano, Japan, was 2[(2)+(2)+(2)]=12.

This paper reports the excretory system of a cystophorous cercaria, *Cercaria yoshidae* Cort et Nichols, 1920.

Materials and Methods

Cercariae were obtained from rediae dissected out of freshwater snails, *Semisulcospira libertina*, collected at Hoshina, Wakaho, Nagano City, in July 1982. The excretory system was studied in living specimens.

Results

The present cercaria agreed well with that of *C. yoshidae* as described by Ito (1952) in every respect except in the excretory system, as will be discussed later. The excretory system was as follows (Fig. 1).

An epithelial excretory vesicle is saccular. From its anterior tip, a median tube runs forward and bifurcates posterior to the ventral sucker into lateral collecting tubes, which unite behind the pharynx. A short common collecting tube arises from each of them at about the level of the intestinal bifurcation and curves between the lateral collecting tube and the intestinal cecum. This tube divides into an anterior and a posterior collecting tube. Each of these receives tubules from a pair of flame cells. A single caudal tube extends from the excretory vesicle through the bulb and tail, and bifurcates just in front of the tail oar to open at lateral excretory pores. Some distance from the body-tail furrow, this tube receives two short collecting tubes, each of which divides into two collecting tubules terminating in their respective flame cells in the bulb. The flame-cell formula accordingly is 2[(2)+(2)+(2)]=12.

Discussion

As for the excretory system of *C. yoshidae*, Ito (1952) described that the anterior and posterior collecting tubes were connected separately with their lateral collecting tube and expressed the flame-cell formula as 2[(2+2)]=8. He mentioned nothing of excretory organs in the tail. However, the present study has shown that the two tubes are joined to their lateral collecting tube by one common tube and furthermore that there are two pairs of caudal flame cells independent of the collecting tubes in the body.

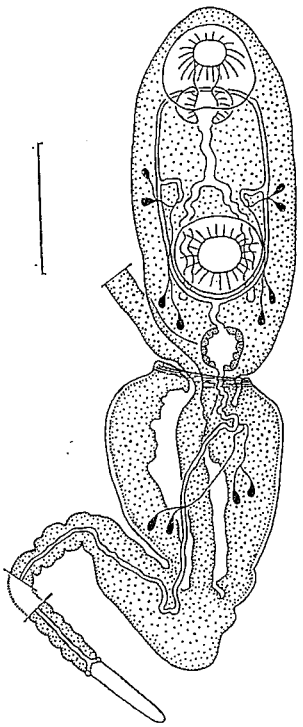

Fig. 1. Excretory system in an immature cercaria, *C. yoshidae*, ventral view. The greater part of the tail and delivery tube are omitted. Scale bar=0.05 mm.

Acknowledgment

This study was supported in part by a grant from the "Nagano-ken Kagaku Shinko-kai" to the junior author in 1982.

Reference

1) Ito, J. (1952): Redescription of *Cercaria yoshidae* Cort et Nichols, 1920, a cystophorous cercaria in the snail *Semisulcospira* spp. in Japan. Jap. J. Med. Sci. Biol., 5: 447-454.

Received October 8, 1984.