

A Record of *Diplozoon nipponicum* Goto, 1891 Found from *Cyprinus carpio nudus* in Korea

Jae Ku Rhee

Department of Veterinary Parasitology, Jeonbuk National University, Jeonju 520, Korea

Since *Diplozoon paratoxum* Nordmann, 1832 was first discovered on the gills of a species of Cyprinidae, *Abramis brama* by Nordmann in Germany, over sixty species belonging to the genus *Diplozoon*, a kind of monogenean trematodes, have been reported in the world to date.

Diplozoon nipponicum Goto, 1891 was secondly discovered among the genus *Diplozoon*, and it was initially described from *Carassius vulgaris* obtained from a pond in the Shimura district, the suburbs of Tokyo. The worm was later found in the Liao River of China and the Amur River in the Soviet Union. *D. nipponicum* has two distinguished characteristics by which it is separated from all other species. The first characteristic is the presence of the sticky gland described by Goto(1891) and the second is the position of the egg filament attached to the opercular pole pointed out by Kamegai(1972). Reichenbach-Klinke(1961) stated that *Diplozoon* was an ancient parasite originated in India. Although *Diplozoon* seems to have a cosmopolitan pattern of distribution, *D. nipponicum* can be found only in the Far East.

The author detected *D. nipponicum* on the gills of Israel carp, *Cyprinus carpio nudus*, cultured in a net cage fish farm at the Soyang lake, managed by Horim Fisheries from June to July 1985. The fish hosts reached about 500g of body weights since the incubation from June to July 1984. Infection rate of the worm in the fish population was about 0.3% and the number of worm infected per fish was from 1 to 3.

The material consisted of 103 worms collected from the fishes and the colour of live specimen

was dark grey. The diplozoon appeared to be a form of the letter X as the two dipropae were closely fused at a little posterior to the middle portion of its whole length.

The worms were fixed with 70% ethanol under slide glass pressure, and were stained with Delafield's hematoxylin. The worms measured on the average 7.98mm their whole length, 5.08mm anterior portion and 2.89mm posterior portion.

The mouth was situated at the ventral side of the anterior extremity of the body and led into the pharynx laid in the middle line, behind the oral suckers. The oral suckers situated anteriorly as a pair, and a pair of the sticky glands was found anterior to the suckers. There were four pairs of well developed posterior adhesive organs, which were ellipsoidal, in the vicinity of posterior extremity.

The average dimensions of various organs of the worm were as follows; 0.121×0.089mm the oral sucker, 0.089×0.075mm the pharynx, 0.060×0.057mm the sticky gland, and 0.085×0.161mm the first, 0.082×0.154mm the second, 0.081×0.145mm the third and 0.06×0.114mm the fourth of the posterior adhesive organs.

The median trunk of the intestine was present in the anterior portion of the body, right and left, lateral branches, which ramified dichotomously once or twice. Some of these branches were distinctly paired, others were as clearly unpaired. The vitelline gland was an extensive lobed body located exclusively in the anterior portion of the body all around the intestinal



Fig. 1. The whole shape of *Diplozoon nipponicum*, 5 times of the original size.

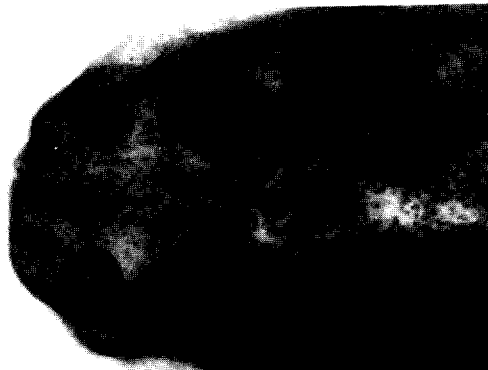


Fig. 2. The head part of the worm showing a pair of small sticky glands and large oral suckers, 400 times.

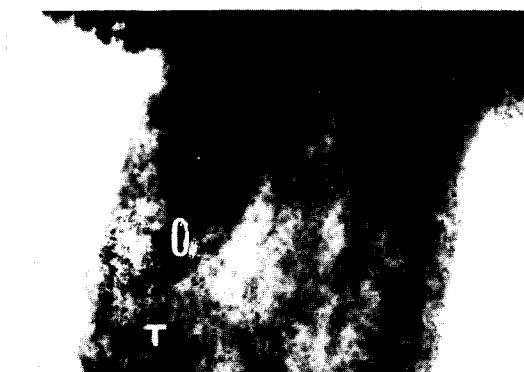


Fig. 3. The reproductive organ of the worm which poorly developed, 200 times(O; Ovary, T; Testis).

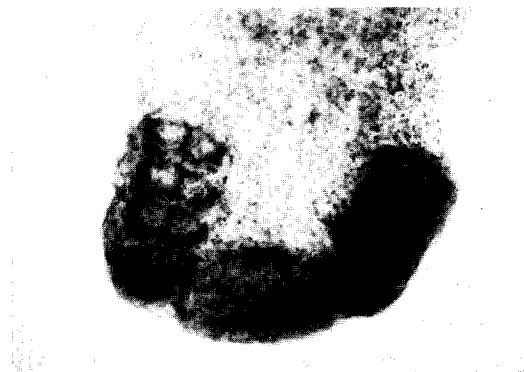


Fig. 4. The vicinity of the posterior extremity of the worm, showing four pairs of the posterior adhesive organs, 200 times.

branches both on their dorsal and ventral sides.

Development of the reproductive organ which situated in the first portion of the posterior part of the body was meagre. The reason of the underdeveloped reproductive organ could be deduced that the specimens were younger than 12 months as the age of the fish host was considered as yearling.

The structure of the organ was, therefore, not exactly recognized. In some specimens oval shaped giant cell masses of the ovaries were poorly developed and were maldistributed to the external part of the posterior portion and were lain adjacent to the union portion. And the cells flock of the testis which developed in some degree were situated posterior to the ovaries in some specimens, but the uteri, ova etc were

not realized in all of the worms.

The present specimens prove to be *D. nipponicum*, because of the presence of the sticky gland and metrical data of the specimens are consistent with those given by Goto(1891), Kamegai *et al.*(1966) and Kamegai(1970) for the species *D. nipponicum*.

Accordingly, this is the first record of *D. nipponicum* Goto, 1891 for Israel carp, *Cyprinus carpio nudus* in Korea and therefore, the author would like to propose that Korea be added as a distribution for the parasite.

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＝國文抄錄＝

韓國產 香魚에 있어서의 *Diplozoon nipponicum* Goto, 1891

全北大 獸醫寄生蟲學
李 宰 求

濟林水産 昭陽湖 가두리 養殖場에서 飼育하고 있는 12個月齡의 香魚(이스라엘잉어)로 부터 얻은 103個體의 蟲體를 詳細하게 檢討한 바 X字狀 蟲體, 計測值, 특히 1雙의 粘着腺의 存在 등의 特徵으로 미루어 보아 *Diplozoon nipponicum* Goto, 1891이라고 同定한다. 이 單生目 吸蟲은 著者가 우리나라에서 처음으로 發見하였으며, 새로운 分布地域으로서 韓國을 追加 報告한다.