

SOME REMARKS ON THE BIOLOGY OF CAPILLARIA PTEROPHYLLI HEINZE, 1933

In 1981, a mass occurrence of intestinal capillariids was recorded in aquarium fishes *Cichlasoma octofasciatum* (fam. Cichlidae) from breedings of the Aquarium Club Tatra Smíchov at Prague. The infested fishes, harbouring as many as 45 parasites, did not take food, they were pinched, little movable, keeping at the bottom of the vessel only where they often remained to lay on their side; these fishes usually died within several days. An examination of the nematode morphology indicated an appurtenance of these parasites to the species *Capillaria pterophylli* Heinze, 1933, a well-known pathogenic parasite of some aquarium fishes, mainly of the genera *Pterophyllum* and *Sympodus*. The morphology of nematodes from this new host was on the whole in accordance with the existing species descriptions (Heinze K., Z. Parasitenk. 5: 393—406, 1933; Moravec F., Gut J., Folia parasit. (Praha) 29: 227—231, 1982); the body length of males was 5.44—7.44 mm, of gravid females 9.38 to 16.49 mm; the shape and structure of spicule was characteristic of the species, its length being 0.174—0.210 mm; spicular sheath was spiny (Fig. 1); the size of mature eggs was 0.054 to 0.066 × 0.027—0.030 mm; the stichosome was composed of 40—50 stichocytes.

In May of 1981, 4 live *C. octofasciatum* showing symptoms of capillariid infection were transferred to an aquarium (180 l) in the laboratory of the Institute of Parasitology, Czechoslovak Academy of Sciences, at Prague. The fishes did not take any food and two of them died already after 2 days, the third fish after 12 days and the last one after 18 days; all these fishes proved to be infected by adult nematodes *C. pterophylli*, the intensity of infection being 8—25 capillariids per fish. In order that a possibility of a transmission of this parasite to typical hosts might be verified, 6 young specimens (body length about 4 cm) of *Pterophyllum scalare* originating from an uninfested breeding were

added to the aquarium on the same day as infected *C. octofasciatum*; additional 5 *P. scalare* specimens were kept in another vessel as a control. All the fishes were fed with tubificids.

The first experimental *P. scalare*, being examined after 53 days, proved to be negative. The next fish was dissected on day 65 and it harboured 30 capillariid larvae in its intestine; these were 0.530—1.700 mm long and 0.019 to 0.027 mm wide, the length of their oesophagus represented 74—81 % of the whole body length. The third fish was examined on day 116 and it harboured 22 nematodes, mostly larvae, but ma-

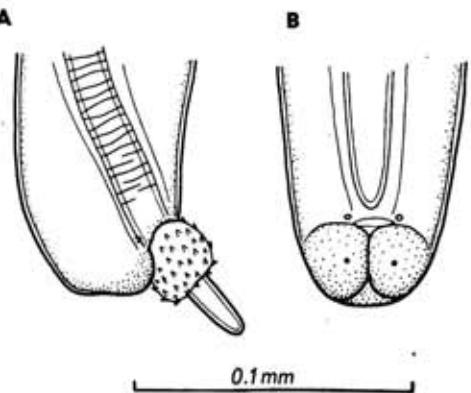


Fig. 1. *Capillaria pterophylli* Heinze, 1933 from *Cichlasoma octofasciatum*. A — posterior end of male (lateral view); B — posterior end of male (ventral view).

les some 5 mm long were also present. The fourth specimen of *P. scalare* died after 143 days, harbouring a total of 104 nematodes representing all developmental stages including several gravid

females; the length of males was about 5—7 mm, of gravid females 10—13 mm, of larvae 0.95 to 1.22 mm. The last two experimental fishes were examined after 197 days and harboured exclusively adult nematodes (intensity 1 and 12 specimens), 1 male and 12 gravid females. All the control fishes examined on the same day proved to be negative.

These observations suggest that the development of *C. pterophylli* is homoxenous (i.e. without a participation of obligate intermediate hosts) and that fishes acquire new infections by swallowing the parasite's embryonated eggs. The eggs of capillariids, being uncleaved in the time of oviposition, get into the water along with the faeces of the fish hosts and a larva develops in them within several days (embryonated eggs of *C. pterophylli* were found in the detritus on the bottom of the aquarium); at room temperatures this development is rather slow in *C. pterophylli*, this being indicated as well by our data; according to Reichenbach-Klinke (Die Aquarien- und Terrarien-zeitschr. (Datz) 5: 68—70, 1952) the development of the

larva within the egg shell lasts 33 days in this species, while in e.g. *Pseudocapillaria brevispicula* from European cyprinids only 7 days (Moravec F., Folia parasit. (Praha), in press). Our observations confirm the possibility of a direct development of *C. pterophylli* without a participation of intermediate hosts (e.g. aquatic oligochaetes) that are probably necessary for the development of some other fish capillariids (e.g. *Schulmanella petruschewskii*, *Pseudocapillaria catostomi*, *P. brevispicula*) (Kutzer E., Otte E., Z. Parasitenk. 28: 16—30, 1966; Bell D. A., Beverley-Burton M., Env. Biol. Fish 5: 267—271, 1980; Moravec F., Folia parasit. (Praha), in press); they suggest also a comparatively slow development of these nematodes in their fish hosts. Judging from the above mentioned observations, the prepatent period of *C. pterophylli* is at least 3 months at water temperatures of some 20—23 °C.

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