

BRANCHIURIDS (*ARGULUS*) AS INTERMEDIATE HOSTS OF THE DANICONEMATID NEMATODE *MEXICONEMA CICHLASOMAE*

František Moravec¹, Victor Vidal-Martínez² and Leopoldina Aguirre-Macedo²

¹Institute of Parasitology, Academy of Sciences of the Czech Republic, Branišovská 31, 370 05 České Budějovice, Czech Republic;

²Laboratory of Parasitology, Centre for Research and Advanced Studies, National Polytechnic Institute, Carretera Antigua a Progreso Km. 6, AP 73 "Cordemex", CP 973 10 Mérida, Yucatán, Mexico

At present the dracunculoid family Daniconematidae Moravec et Køie, 1987 includes two monotypic genera, *Daniconema* Moravec et Køie, 1987 and *Mexiconema* Moravec, Vidal et Salgado Maldonado, 1992; the former is represented by *D. anguillae* Moravec et Køie, 1987, a specific parasite of eels (*Anguilla* spp.) in Europe and North America, whereas the latter by *M. cichlasomae* Moravec, Vidal et Salgado Maldonado, 1992, a parasite of cichlids and poeciliids in southern Mexico.

The life cycles of these remarkable tissue parasites remained unknown and the only observation in this respect was that by Molnár and Moravec (Molnár K., Moravec F. 1994: *Folia Parasitol.* 41: 215-219), who had described third-stage larvae of *D. anguillae* from the subcutaneous tissue of eels *A. anguilla* (L.) in Hungary. Molnár and Moravec (1994: op. cit.), Moravec et al. (Moravec F., Jiménez-García M.I., Salgado-Maldonado G. 1998: *Parasite* 5: 289-293) and Vidal-Martínez et al. (Vidal-Martínez V. M., Kennedy C. R., Aguirre-Macedo M. L. 1998: *J. Helminthol.* 72: 199-207) have speculated that, because of the morphological similarity of these nematodes with skrjabillanids (see Tikhomirova V.A. 1980: *Parazitologiya* 14: 258-262), also their life cycle pattern may be similar to that of skrjabillanids, i. e. that ectoparasitic, haematophagous branchiurids (*Argulus* spp.) may serve as the intermediate host.

Since *Mexiconema cichlasomae* might be a serious problem in the newly established cultures of cichlids in southern Mexico, the elucidation of its life cycle is very important. Therefore, in November 1994, in an attempt to find the intermediate host of this parasite, we examined 139 specimens of *Argulus* sp. collected from the body surface of *Cichlasoma urophthalmus* (Günther) from Celestún, Yucatán, Mexico, the locality where Salgado Maldonado (Salgado

Maldonado G. 1993: Ph.D. thesis, CINVESTAV-IPN, Unidad Merida, 357 pp.) recorded 43% of *C. urophthalmus* infected by *M. cichlasomae*; however, no nematode larvae were found in these crustaceans. A new attempt to find the larvae was made in May 1998, when 155 *Argulus* sp. collected from the same fish species were examined from Celestún; 2 of them (prevalence 1.29%, intensity 1 and 6 larvae) harboured small nematode larvae (103-196 µm long and 5-9 µm wide) in their haemocoel, located in the cephalothorax and natatory appendages. The small size of larvae suggests that they were advanced first- or second-stage larvae; Moravec et al. (Moravec F., Vidal V., Salgado Maldonado G. 1992: *Folia Parasitol.* 39: 33-40) reported the first-stage larvae of *M. cichlasomae* from uterus to be about 180 µm long and 5-6 µm wide. Based on the measurements of larvae and the fact that no other dracunculoid species of the families Daniconematidae or Skrjabillanidae occurs in this region, the larvae from *A. mexicanus* can be considered to be *M. cichlasomae*. The size of larvae suggests that both *Argulus* specimens acquired infection only recently. According to Salgado Maldonado (1993, op. cit.), *M. cichlasomae* exhibits a pronounced seasonality in the occurrence in its fish host (*C. urophthalmus*) in Celestún, with the highest prevalence (up to 100%) and mean intensity (nearly 40) in the spring (April, May) and much lower prevalence and mean intensity in other months; this may explain why *M. cichlasomae* larvae were recorded in *Argulus* in the spring (in 1998), but not in the autumn (in 1994).

Although this preliminary report gives the first evidence about the intermediate host of a daniconematid nematode, the elucidation of the life cycle of *M. cichlasomae* will require a detailed study, including the recognition of the parasite's larval morphogenesis.

Received 8 Juni 1998

Accepted 13 July 1998