Molecular evidence linking the larval and adult stages of Mexiconema cichlasomae (Dracunculoidea: Daniconematidae): from Celestun coastal lagoon, Yucatán, México, with notes on its phylogenetic position in the Dracunculoidea

The study of the life cycles of nematodes of aquatic organisms in tropical America is scarce, and restricted to Anisakidae (5 life cycles) and to Camallanidae (4 life cycle) families. In Mexico, the only partially described nematode life cycle is that of the dracunculid Mexiconema cichlasomae. This nematode uses the crustacean ectoparasite Argulus yucatanus (Crustacea: Branchiura) as first intermediate host and the adult stages are found in the Mayan cichlid Cichlasoma urophthalmus (Perciformes: Cichlidae) both from Celestun coastal lagoon, Yucatán, Mexico. However, the lack of distinguishing characteristics in the larval stages cast doubts about whether they truly belong to M. cichlasomae. Therefore, our aims were two-fold: testing the possible conspecificity between larval stages in A. yucatanus and M. cichlasomae adults in C. urophthalmus using morphological features and SSU molecular marker, and re-evaluating the phylogenetic position of M. cichlasomae into the Daniconematidae family by molecular analysis. We obtained sequences from the SSU rDNA marker from larval stages of M. cichlasomae in A. yucatanus and adult nematodes in C. urophthalmus. Our morphological and molecular results support conspecificity between M. cichlasomae larvae in A. yucatanus and the adult stages in C. urophthalmus. Furthermore, our phylogenetic analyses provide evidence of, the monophyly of M. cichlasomae among the Daniconematidae associated with as branchiurid intermediate hosts. This is the first complete life cycle of Daniconematidae nematode of fishes for tropical America.

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