

Poster 4

Description of sphaeractinomyxon types (Cnidaria: Myxosporea) from marine oligochaetes in the Minho River estuary and nearby coastal area

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Abstract

Background: Myxosporeans are important fish endoparasites with a complex life cycle that involves the production of actinospores in annelid hosts. More than 2,400 myxosporean species are presently known, yet only about 60 have their complete life cycle described [1]. Difficulties in the annelid sampling and examination, namely from the marine environment, and typically low prevalence of infection, hinder our knowledge of myxosporean-annelid interactions [2]. **Objective:** This study focused on the detection of myxosporean parasites present in the marine annelid communities of the Minho River lower estuary and nearby coastal area, seeking to unravel their biodiversity and potentially allow the clarification of new life cycles. **Methods:** Estuarine sediment and coastal substrates were collected monthly from “Sapal do Coura” in the Minho River lower estuary and at Moledo beach, respectively. Annelids collected from these sampling sites were microscopically examined for the detection of actinospore development. Actinospores were morphologically characterized and prepared for DNA extraction and sequencing of the small subunit ribosomal gene (18S rDNA). For annelid identification, the 16S rRNA gene of mitochondrial DNA (mtDNA) was amplified and sequenced. Sequence assembly and maximum likelihood phylogenetic analysis were performed using MEGA X. **Results:** Six morphologically and molecularly distinct types of sphaeractinomyxon were found infecting the coelomic cavity of marine oligochaetes belonging to the family Naididae. BLASTn revealed three of these types as novel records, one of which could be molecularly inferred as the life cycle counterpart of the mugiliform-infecting myxosporean *Myxobolus labrosus*. Maximum likelihood retrieved all novel sequences positioned within the monophyletic clade of mugiliform-infecting *Myxobolus*. **Conclusions:** This study expands the known diversity of sphaeractinomyxon types, reinforcing naidids as preferred hosts for these myxosporeans in marine environments. The strengthening of the correlation between sphaeractinomyxon and mugiliform-infecting *Myxobolus* reinforces the functionality of this actinospore morphotype in promoting transmission to mullet hosts [3].

Keywords: Annelida; Naididae; life cycle; mugiliform-infecting *Myxobolus*; 18S rDNA

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