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A new species of *Myxinidocotyle* (Monogenea: Acanthocotylidae: Myxinidocotylinae) from captive sixgill hagfish, *Eptatretus hexatrema* (Chordata: Myxinidae), with amendment of the subfamily diagnosis

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Abstract

Myxinidocotyle eptatreti **n. sp.** is described from the skin of the sixgill hagfish, *Eptatretus hexatrema* collected for exhibition at the Two Oceans Aquarium in Cape Town, South Africa. The new species is the first acanthocotylid described from South Africa and differs significantly from the only two known *Myxinidocotyle* species by the morphology of the sclerotised male copulatory tube and the presence of a diverticulated intestinal caecum. The subfamily diagnosis is amended to include a single seminal receptacle, found within the anterior concave portion of the ovary and excludes the vaginal *seminis receptaculum* which is considered the seminal vesicle. The vagina travels ventrally over the seminal vesicle and does not fuse with it bilaterally as originally proposed by Malmberg & Fernholm (1989). *Myxinidocotyle* spp. possess 8 or 9 testes. The proximal male accessory gland reservoirs are connected by an intricate network of fine ducts to the field of extensive male accessory gland cells extending along the length of the body proper. Observations on the locomotion and attachment of live worms *in vitro* are discussed and the presence of adhesive secretions is confirmed for the haptoral glands and anterior glands.

Key words: *Myxinidocotyle*, Monogenea, Acanthocotylidae, hagfishes, public aquarium

Introduction

Hagfishes are primitive, cartilaginous marine craniates of the Class Agnatha (see Wisner 1999, Kearn 2004) and are often kept on exhibit in public aquaria due to their simple husbandry requirements. The Two Oceans Aquarium in Cape Town occasionally exhibits the sixgill hagfish, *Eptatretus hexatrema* (Müller) collected locally. All *E. hexatrema* specimens over repeated collections for the aquarium were observed to carry an unidentified species of *Myxinidocotyle* Malmberg & Fernholm, 1989 on the entire skin surface. Throughout the history of maintaining *E. hexatrema* on exhibit these monogeneans have never presented themselves as problematic. The recent exhibition of new acquisitions of *E. hexatrema* at Two Oceans Aquarium presented an opportunity to identify and investigate these monogeneans, providing sufficient information to warrant amendment of Myxinidocotylinae Malmberg & Fernholm, 1989.

Materials and methods

Several specimens of *E. hexatrema* were collected in shallow water at Kommetjie (34°8’36.03”S, 18°19’14.24”E) in October 2009 for exhibition at Two Oceans Aquarium. Hagfish were initially housed in the quarantine facility where monogeneans were easily observed actively moving along the bodies of all the specimens. Seven hagfish were removed to a 25 L bucket containing seawater treated with 0.30ml/L 2-

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