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Overview of South African *Dendromonocotyle* (Monogenea: Monocotylidae), with descriptions of 2 new species from stingrays (Dasyatidae) kept in public aquaria

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Abstract

Two new species, *Dendromonocotyle citrosa* n. sp. off *Dasyatis chrysonota* (Smith) from Two Oceans Aquarium in Cape Town and off *Himantura gerrardi* (Gray) from uShaka Sea World in Durban and *D. ukuthena* n. sp. off *H. gerrardi* and *H. uarnak* (Forsskål) also from uShaka Sea World in Durban, are described. These can be distinguished from previously described *Dendromonocotyle* species by the morphology of the distal portion of the male copulatory organ and the proximal part of the vagina. Vaginal morphology is proposed as an important diagnostic character for species in the genus. *Dendromonocotyle colorni* Chisholm, Whittington & Kearn, 2001 which was originally recorded from *H. uarnak* in Israel, was discovered on *H. uarnak* sympatrically with *D. ukuthena* n. sp. and with *D. citrosa* n. sp. and *D. ukuthena* n. sp. off *H. gerrardi*. Minor differences in the number of papillary sclerites, the presence of septal tripartite sclerites and in the number of eyespots were seen between *D. colorni* collected from *H. uarnak* and *H. gerrardi* from uShaka Sea World and those originally described off *H. uarnak* from Israel. We demonstrate that the position of the marginal hooklets can be used to determine the orientation of the haptor of all representative *Dendromonocotyle* species with or without hamuli. We conclude that *Dendromonocotyle* species may not be as host-specific as previously believed and that minor differences in morphology are host or geographically induced.

Key words: *Dendromonocotyle*, Monogenea, Monocotylidae, *Himantura*, *Dasyatis*, public aquaria, stingrays

Introduction

Members of *Dendromonocotyle* Hargis, 1955 are usually found exclusively on the dorsal skin surface of stingrays and the genus currently comprises 13 species (Chisholm *et al.* 2005). Intensities of monogeneans on wild sharks and stingrays are generally lower than those kept in captivity (Chisholm *et al.* 2004). Because they have a direct life-cycle, monogeneans can be particularly important disease-causing organisms on captive hosts due to their ability to increase rapidly in numbers (Chisholm *et al.* 2004). Infection potential is further enhanced since the density of hosts in aquarium exhibits is usually high. Lesions caused from large numbers of feeding monogeneans can lead to opportunistic secondary infections of the host by bacterial pathogens, or can be directly responsible for host mortality (Bullard *et al.* 2001). Indeed, high intensities of *Dendromonocotyle* species infesting stingrays in public aquaria have been shown to be problematic (see Chisholm *et al.* 2004).

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