



Leptoecia midatlantica, a new species of the deep-sea quill-worms (Polychaeta: Onuphidae: Hyalinoeciinae) from the Mid-Atlantic Ridge

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Abstract

A new species of the genus *Leptoecia* Chamberlin, 1919, collected from the northern part of the Mid-Atlantic ridge at depths around 2100–2700 m, is described. *Leptoecia midatlantica* sp. nov., is characterized by the presence of both uni- and bidentate simple falcigers on the first pair of parapodia, presence of dorsal cirri on all chaetigers, dorsoventrally flattened organic tube, and appearance of the first subacicular hooks around chaetiger 28–39. The unusually high intraspecific variability of several morphological characters (dentition of falcigers, shape of prostomium, and number of anal cirri) in the examined material is described. A key for the seven known species of the genus *Leptoecia* is provided.

Key words: taxonomy, species key, intraspecific variability, *Neonuphis*, *Parhyalinoecia*, *Paronuphis*

Introduction

The quill-worms represent a well defined, predominantly deep-sea complex of genera of the family Onuphidae Kinberg, 1865 comprising about 35 species. They are characterized by the presence of enlarged anterior parapodia bearing claw-like falcigers, reduction of peristomial cirri and the fifth pair of maxillae, and by the totally secreted translucent organic tubes (Paxton 1986). The quill-worms are believed to be specialized motile scavengers occasionally reaching high densities at great depths, apparently adapted for epibenthic crawling in search for scattered food sources such as dead fish and other large animals sinking to the bottom from the water column (Dayton & Hessler 1972; Fauchald & Jumars 1979). The quill-like tubes are unique among polychaete tubes, making quill-worms the most easily recognizable polychaetes in surveys of macrofauna both in sediment samples and in underwater images or video (Wigley & Emery 1967; Dyer *et al.* 1982; Neumann *et al.* 2008; Quiroga *et al.* 2009). Nevertheless this generic complex is the most poorly studied group of the family Onuphidae in terms of taxonomy. *Hyalinoecia* Malmgren, 1867 represents the largest genus consisting of about 24 nominal species that can be found from shelf to abyssal depths. Paxton (1986) also recognized three less species-rich but exclusively deep-water genera: *Hyalospinifera* Kucheruk, 1979, *Leptoecia* Chamberlin, 1919 and *Neonuphis* Kucheruk, 1978. However, she indicated that *Leptoecia* and *Neonuphis* are very close to each other, and the examination of new material would possibly lead to their synonymization (Paxton 1986). Moreover, the quill-worms display the highest degree of intraspecific variability in many diagnostic characters among the onuphids and the analysis of a large number of specimens is required in order to distinguish congeners (Mangum & Rhodes 1970; Southward 1977; Orensanz 1990).

The genus *Leptoecia* was originally erected by Chamberlin (1919) for *Hyalinoecia*-like worms lacking branchiae and having a relatively long peristomium. Hartman (1965) considered it as a junior synonym of *Paronuphis* Ehlers, 1887, also *Hyalinoecia*-like and lacking branchiae genus. Mangum and Rhodes (1970) analyzed extensive material from the North Atlantic and suggested that *Onuphis* (*Paronuphis*) *gracilis* Ehlers, 1887, the type species of the genus, represents the abranchiate juvenile of *Hyalinoecia artifex* Verrill, 1880 making *Paronuphis* an invalid name. Hartmann-Schröder (1975) erected a new genus of onuphids with quill-like tubes, *Parhyalinoecia* Hartmann-Schröder, 1975, based on the absence of prostomial lips. Kucheruk (1978) revised the generic composition