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New genus and two new species of the family Ethmolaimidae (Nematoda: Chromadorida), found in two different cold-seep environments

BEZERRA TANIA NARA^{1*}, PAPE ELLEN¹, HAUQUIER FREIJA¹, VANREUSEL ANN¹ & INGELS JEROEN^{1,2}

¹Ghent University, Department of Biology, Marine Biology Section, Krijgslaan 281/S8, 9000 Ghent, Belgium

²Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth, PL1 3DH, United Kingdom

*Corresponding author. E-mail: tania.campinasbezerra@ugent.be

Abstract

This study describes a new genus *Dystomanema* **gen. nov.** with two new species, *D. cadizensis* **sp. nov.** and *D. brandtae* **sp. nov.** within the family Ethmolaimidae, subfamily Neotonchinae, based on specimens from two low-activity cold-seep environments at distant geographical locations. The new genus was first identified in samples from the Darwin mud volcano (1100 m depth) in the Gulf of Cádiz and later on also found in samples from a low-activity seep in the Larsen B embayment (820m depth) off the eastern Antarctic Peninsula. Until now, the family Ethmolaimidae contained nine genera: *Ethmolaimus* and *Paraethmolaimus* in the subfamily Ethmolaiminae, and *Comesa*, *Filitonchoides*, *Filitonchus*, *Gomphionchus*, *Gomphionema*, *Nannolaimus*, and *Neothonchus* in the subfamily Neotonchinae. The most important family characteristics are: an annulated cuticle bearing transverse rows of dots, cephalic sensilla arrangement of 6+6+4, a spiral amphid, an oesophagus with muscular posterior bulb, paired gonads and males with cup-shaped precloacal supplements. The new genus resembles *Comesa* and *Neothonchus*, but is typified by a ventrally displaced oral opening with three very small teeth that are easily overlooked. *D. cadizensis* **gen. nov. sp. nov.** is characterized by the 1401–2123 µm long body; cuticle transversally striated with fine punctation; head conical; low lips; amphid spiralled 3 turns, oral opening ventrally displaced, male with outstretched testes; spicules of equal size; gubernaculum plate-like and ten to twelve conspicuous cup-shaped precloacal supplements with external longitudinal articulated flange. *D. brandtae* **gen. nov. sp. nov.** can be distinguished by the 2438–3280 µm long body; cuticle transversally striated with fine punctation; head conical; low lips; amphid spiralled 3+ turns; oral opening ventrally displaced; male with anterior testes outstretched and posterior one smaller and reflexed; spicules of equal size; gubernaculum plate-like and twenty conspicuous cup-shaped precloacal supplements with external longitudinal articulated flange. Notes on the ecology and habitat of the new genus are provided in light of its discovery in cold-seep environments.

Key words: Antarctic, Larsen, Southern Ocean, Gulf of Cádiz, Northeast Atlantic, *Dystomanema* **gen. nov.**, *Dystomanema cadizensis* **gen. nov. sp. nov.**, *Dystomanema brandtae* **gen. nov. sp. nov.**, cold seep

Introduction

The nematode family Ethmolaimidae has two subfamilies: (1) Ethmolaiminae Filipjev & Stekhoven, 1941, containing the two genera *Ethmolaimus* de Man, 1880 (syn. *Trichethmolaimus*, Jensen 1994) and *Paraethmolaimus* Jensen, 1994, and (2) Neotonchinae Wieser & Hopper, 1966, which, until now, contained seven genera: *Comesa* Gerlach, 1956 *Filitonchoides* Jensen, 1985, *Filitonchus* Platt, 1982, *Gomphionchus* Platt, 1982, *Gomphionema* Wieser & Hopper, 1966, *Nannolaimus* Cobb, 1920, and *Neothonchus* Cobb, 1933. The genus *Ethmodora* Khera, 1975 is here not considered as a valid one.

Dystomanema **gen. nov.** was found at the Darwin mud volcano, Gulf of Cádiz in the Northeast Atlantic at 1100 m water depth and at a low-activity cold seep in the Larsen B area, Weddell Sea at 820 m water depth. Both locations are comparable in that they show the presence (Darwin mud volcano) or remnant signs (Larsen B) of cold-seep activity. Cold seeps are ecosystems that derive their primary metabolic energy from chemical processes instead of depending on settling phytodetrital matter from euphotic waters (Van Dover *et al.* 2002, Domack *et al.*