

**On the genus *Lagenopolycystis* Artois and Schockaert, 2000 (Platyhelminthes, Kalyptorhynchia, Polycystididae)**

MARLIES MONNENS<sup>1,\*</sup>, ERNEST R. SCHOCKAERT<sup>1</sup>, YANDER L. DIEZ<sup>1,3</sup>, NATHALIE REVIS<sup>1</sup>, TOON JANSSEN<sup>4</sup>, PHILIPPE E. H. JOUK<sup>5</sup>, BART TESSENS<sup>1</sup>, NIELS W. L. VAN STEENKISTE<sup>6,7</sup> & TOM J. ARTOIS<sup>1</sup>

<sup>1</sup>*Hasselt University, Centre for Environmental Sciences, Research Group 'Zoology: Biodiversity and Toxicology', Campus Diepenbeek, Agoralaan Gebouw D, B-3590 Diepenbeek, Belgium*

<sup>2</sup>*Royal Belgian Institute of Natural Sciences, OD Taxonomy and Phylogeny, Vautierstraat 29, B-1000, Brussels, Belgium*

<sup>3</sup>*Museum for Nature Hamburg – Zoology, Leibniz Institute for the Analysis of Biodiversity Change (LIB), Martin-Luther-King-Platz 3, D-20146 Hamburg, Germany*

<sup>4</sup>*Research Unit Nematology, Ghent University, K.L. Ledeganckstraat 35, B-9000 Gent, Belgium*

<sup>5</sup>*Royal Zoological Society of Antwerp, Koningin Astridplein 26, B-2018 Antwerp, Belgium*

<sup>6</sup>*Departments of Botany and Zoology, University of British Columbia, 3156-6270 University Blvd, Vancouver, BC, V6T 1Z4, Canada*

<sup>7</sup>*Hakai Institute, 303-1100 Island Hwy, Campbell River, BC, V9W 8C6, Canada*

\*Corresponding author. E-mail: [marlies.monnens@uhasselt.be](mailto:marlies.monnens@uhasselt.be)

Meiofauna, broadly defined as those organisms able to pass through a 1-mm sieve but retained by a 45- $\mu$ m mesh, comprise a highly diverse assemblage of invertebrates. Despite their high diversity and abundance, their ubiquitous presence across the globe, and their important role in ocean health and ecosystem functioning, these animals are frequently overlooked in biodiversity assessments. A prime example of such an understudied group is Rhabdocoela Ehrenberg, 1831, a highly speciose and ecologically diverse group of flatworms with over 1500 species found worldwide. As top predators, these microturbellarians are assumed to play a key role in meiofaunal ecosystems, yet many species remain undescribed to date.

This study focuses on *Lagenopolycystis*, a rhabdocoel genus originally described in 1965, which currently includes only two described species. By combining results from over 30 years

of marine sampling campaigns across Europe and Eastern Africa conducted by our research group, we now present an updated description of the genus, followed by a redescription of the type species *Lagenopolycystis peresi* Brunet, 1965, and *L. mandelai* Willems & Artois, 2017. Additionally, we describe a total of six species new to science. The new species are mainly distinguished from each other and other representatives of *Lagenopolycystis* by the organization of their reproductive systems. Comments on the genus' distribution and phylogeny are provided. Our findings contribute to our understanding of microturbellarian diversity, and underscore the need for continued exploration and description of meiofaunal species by future researchers.