

ZOOTAXA

1885

**Western Atlantic Prochaetodermatidae from 35°N south to the Argentine Basin
including the Gulf of Mexico (Mollusca: Aplacophora)**

DMITRY L. IVANOV & AMÉLIE H. SCHELTEMA



Magnolia Press
Auckland, New Zealand

DMITRY L. IVANOV & AMÉLIE H. SCHELTEMA

Western Atlantic Prochaetodermatidae from 35°N south to the Argentine Basin including the Gulf of Mexico (Mollusca: Aplacophora)

(Zootaxa 1885)

60 pp.; 30 cm.

26 Sept. 2008

ISBN 978-1-86977-275-8 (paperback)

ISBN 978-1-86977-276-5 (Online edition)

FIRST PUBLISHED IN 2008 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

© 2008 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)



Western Atlantic Prochaetodermatidae from 35°N south to the Argentine Basin including the Gulf of Mexico (Mollusca: Aplacophora)

DMITRY L. IVANOV¹ & AMÉLIE H. SCHELTEMA²

¹Zoological Museum, Moscow State University, Bol'shaja Nikitskaja str. 6, Moscow 125009, Russia. E-mail: ivanovdl@zmmu.msu.ru

²Woods Hole Oceanographic Institution, Woods Hole, MA 02543 USA. E-mail: ascheltema@whoi.edu

Table of contents

Abstract	3
Introduction	4
Material and methods	4
Taxonomy	5
Prochaetodermatidae Salvini-Plawen, 1972	5
<i>Chevroderma</i> Scheltema, 1985	5
<i>Chevroderma cuspidatum</i> n. sp.	6
<i>Chevroderma turnerae</i> Scheltema, 1985	11
<i>Claviderma</i> Scheltema & Ivanov, 2000	11
<i>Claviderma amplum</i> n. sp.	14
<i>Claviderma compactum</i> n. sp.	16
<i>Claviderma crassum</i> n. sp.	19
<i>Claviderma mexicanum</i> n. sp.	22
<i>Niteomica</i> Ivanov, 1996	22
<i>Niteomica captainkiddae</i> n. sp.	22
<i>Prochaetoderma</i> Thiele, 1902	25
<i>Prochaetoderma gilrowei</i> n. sp.	26
<i>Spathoderma</i> Scheltema, 1985	30
<i>Spathoderma bulbosum</i> n. sp.	30
<i>Spathoderma grossum</i> Scheltema & Ivanov, 2000	33
<i>Spathoderma quadratum</i> n. sp.	33
Table 1–5	39
Discussion	47
Acknowledgements	48
References	48
Supplement	50

Abstract

Nine new species of Prochaetodermatidae from the western Atlantic Ocean south of 35°N (off North Carolina, off eastern Florida, Gulf of Mexico, Guiana Basin, Argentine Basin) are described: *Chevroderma cuspidatum*, *Claviderma amplum*, *Cl. compactum*, *Cl. crassum*, *Cl. mexicanum*, *Prochaetoderma gilrowei*, *Niteomica captainkiddae*, *Spathoderma bulbosum*, and *S. quadratum*. Four species are endemics, *C. cuspidatum* and *S. quadratum*, Gulf of Mexico; *Cl. crassum*, Guiana Basin, and *Cl. compactum*, Argentine Basin. Added to those described earlier for the northwestern, northern, and eastern Atlantic Ocean and Mediterranean Sea (Scheltema 1985; Scheltema & Ivanov 2000), they complete the descriptions of all Atlantic prochaetodermatid species known to us. Two previously described species are amphi-Atlantic: *S. grossum* Scheltema & Ivanov, described from the eastern Atlantic, was found in the collections made in the Guiana and Argentine Basins, and *Ch. turnerae* Scheltema, which had already been described from the northwestern and eastern Atlantic and the Argentine Basin, was not found in the Guiana Basin material.

Key words: Guiana Basin, North Carolina, southeastern Florida, Recife, radula, sclerites, zoogeography

Introduction

The Prochaetodermatidae is a family of predominantly deep-sea, benthic Aplacophora distributed globally except for the Arctic Ocean, Antarctic and sub-Antarctic waters, and the Black Sea. It is a taxon comprised so far by 6 genera and 30 species. Despite their small species numbers, in many localities they are an important part of the deep-sea benthos in numerical abundance (Grassle & Maciolek 1992, Scheltema 1997). They are small animals, usually <5 mm, and covered by glistening aragonite sclerites that identify them as belonging to the Aplacophora. So far, species of Prochaetodermatidae have been or are being described from both sides of the Atlantic from north to south; north Atlantic south of Iceland; Marmara and Mediterranean Seas; northern, north central, northwestern, and southwestern Pacific; and Indian Ocean, at depths between 150 and >9000 m, according to the expedition (Kowalevsky 1901; Schwabl 1963; Scheltema 1985, 1989; Salvini-Plawen 1992, 1999; Ivanov 1995, 1996; Scheltema & Ivanov 2000; Ivanov & Scheltema 2001a,b, 2002, 2004). Few Prochaetodermatidae are recorded from depths <200 m, although one species (*Prochaetoderma boucheti*) is collected regularly at ~100 m off Galicia, Spain (personal observation). Some species and all but one genus (*Dacryomica*) have broad geographic ranges (Scheltema 1985; Scheltema & Ivanov 2000; Ivanov & Scheltema 2001a,b, 2004). The descriptions here of Western Atlantic species continue our studies of existing prochaetodermatid collections from all oceans.

Material and methods

The prochaetodermatid species described are based on a total of >2,000 specimens at varying depths from the continental slope to the abyss: from off North Carolina (~850 m), off the east coast of Florida (~300 m), Gulf of Mexico (~330–3,000 m), Guiana Basin (~500–5,000 m), and Argentine Basin (~1,000–5,000 m) (Tables 1–5). There are no fixed depths defining the bathymetric zones in the deep sea. We use the following: continental shelf, <200 m; continental slope, 200–1,000 m; continental rise, 1,000–4,000 m; and abyss, 4,000–6,000 m (some accounts give the start of the abyss as 3,000 m). Hadal depths >6,000 m are not represented in the Atlantic collections described here.

Holotypes (entire specimens in alcohol and slides) and illustrated paratypes (dissected or entire in alcohol, and slides of sclerites, radulae, and jaws) are deposited in the National Museum of Natural History, Washington, DC (USNM). The other paratypes are deposited in the Museum of Natural History, Washington, DC (USNM); the Zoological Museum of Moscow State University (ZMUM); and the collections of Texas A & M University at Galveston, Department of Marine Biology, Dr. Gilbert Rowe (TAMU) (indicated in Table 1).

Methods for studying prochaetodermatids and the taxonomic characters used here are given in full in Scheltema and Ivanov (2000, 2004) and Ivanov and Scheltema (2001b), with some techniques emended here. The characters are based (1) on external appearance: measurements of the anterium, trunk, shank, and knob and the ratio of posterium length (shank + knob) to trunk length (Fig. 2A); (2) on the morphology of sclerites: through scanning electron microscopy (SEM) and through light microscopy from anterior to posterior including the base, blade, longitudinal axis, and thickness as birefringent patterns seen under crossed polarized light, indicated by dotted lines on drawings, the highest color measured against a crystallographer's chart (e.g., Fig. 5G; Scheltema & Ivanov 2004); and (3) on the morphology of isolated radulae and jaws. Greatest dimensions among available specimens are given for all measurements. For length descriptors: body lengths, "small" = <3 mm, "large" = >5 mm; sclerite lengths, "small" = ~100 μ m, "large" = >250 μ m; sclerite thickness, "thin" = 1–3 μ m, "thick" = >10 μ m. Specimens are usually contracted by fixation, so body measurements given here may be less than in non-contracted living animals. Strongest longitudinal muscles are found in the tail-like poste-