

# BOTANICA MARINA

2015 · FEBRUARY · VOLUME 58 · NUMBER 1 · PAGES 1-54

## EDITOR-IN-CHIEF

*Matthew J. Dring*, Belfast/Portaferry, Northern Ireland (–2016)

## ASSOCIATE EDITORS

*Kirsten Heimann*, Townsville, Australia (–2016)

*Ka-Lai Pang*, Keelung, Taiwan (–2016)

*Georg Pohnert*, Jena, Germany (–2017)

*Michel Poulin*, Ottawa, Canada (–2016)

## EDITORIAL BOARD

*Charles D. Amsler*, Birmingham, USA (–2016)

*John Beardall*, Clayton, Australia (–2016)

*John A. Berges*, Milwaukee, USA (–2016)

*Sung Min Boo*, Daejeon, Korea (–2018)

*Olivier De Clerck*, Ghent, Belgium (–2018)

*Mona Hoppenrath*, Wilhelmshaven, Germany (–2018)

*Gavin W. Maneveldt*, Bellville, South Africa (–2018)

*Michael J. Wynne*, Ann Arbor, USA (–2016)

DE GRUYTER

**ABSTRACTED/INDEXED IN** AGRICOLA (National Agricultural Library); CABI - CAB Abstracts; Celdes; Chemical Abstracts Service (CAS); Chemical Abstracts Service (CAS) - SciFinder; CNKI Scholar (China National Knowledge Infrastructure); CNPIEC; EBSCO - Academic Search; EBSCO - Advanced Placement Source; EBSCO - Biomedical Reference Collection; EBSCO - Food Science Source; EBSCO - MegaFILE; EBSCO - TOC Premier; EBSCO Discovery Service; Elsevier - BIOBASE/CABS (Current Awareness in Biological Sciences); Elsevier - Fluidex; Elsevier - Geobase; Elsevier - SCOPUS; Gale/Cengage - Academic One File; Google Scholar; J-Gate; JournalTOCs; Naviga (Softweco); NISC SA: Fish and Fisheries Worldwide; NISC SA: Water Resources Worldwide; Primo Central (ExLibris); ProQuest - Algology, Mycology, & Protozoology (Microbiology Abstracts C); ProQuest - ASFA 1: Biological Sciences and Living Resources; ProQuest - ASFA 3: Aquatic Pollution and Environmental Quality; ProQuest - ASFA Marine Biotechnology Abstracts; ProQuest - ASFA: Aquatic Sciences and Fisheries Abstracts; ProQuest - Biological Sciences Journals; ProQuest - Ecology Abstracts; ProQuest - Illustrata: Natural Sciences; ProQuest - Oceanic Abstracts; ProQuest - Water resources; ReadCube; SCImago (SJR); Summon (Serials Solutions/ProQuest); TDOne (TDNet); TEMA Technik und Management; Thomson Reuters - Biological Abstracts; Thomson Reuters - BIOSIS Previews; Thomson Reuters - Current Contents/Agriculture, Biology, and Environmental Sciences; Thomson Reuters - Journal Citation Reports/Science Edition; Thomson Reuters - Science Citation Index; Thomson Reuters - Science Citation Index Expanded; Thomson Reuters - Zoological Record; Ulrich's Periodicals Directory/ulrichsweb; WorldCat (OCLC)

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 0006-8055 · e-ISSN 1437-4323 · CODEN BOTNA7

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at [www.degruyter.com/bm](http://www.degruyter.com/bm).

**RESPONSIBLE EDITOR** Prof. Matthew J. Dring, Queen's University Marine Laboratory, Portaferry, Co. Down, BT22 1PF, Northern Ireland, UK, Tel: +44 2892-699526, Fax: +44 28427-28902, Email: [m.dring@qub.ac.uk](mailto:m.dring@qub.ac.uk)

**JOURNAL MANAGER** Dr. Gunda Stöber, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05-279, Fax: +49 (0)30 260 05-298, Email: [bot.mar.editorial@degruyter.com](mailto:bot.mar.editorial@degruyter.com)

**RESPONSIBLE FOR ADVERTISEMENTS** Heiko Schulze, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30 260 05-358, Fax: +49 (0)30 260 05-264, Email: [anzeigen@degruyter.com](mailto:anzeigen@degruyter.com)

© 2015 Walter de Gruyter GmbH, Berlin/Munich/Boston

**TYPESETTING** Compuscript Ltd., Shannon, Ireland

**PRINTING** Franz X. Stücker Druck und Verlag e.K., Ettenheim  
Printed in Germany

**COVER ILLUSTRATION** Shallow-water kelp forest in Nova Scotia, Canada; photograph courtesy of Dr. Annelise S. Chapman.



Offenlegung der Inhaber und Beteiligungsverhältnisse gem. § 7a Abs. 1 Ziff. 1, Abs. 2 Ziff. 3 des Berliner Pressegesetzes: Die Gesellschafter der Walter de Gruyter GmbH sind: Cram, Gisela, Rentnerin, Berlin; Cram, Elsbeth, Pensionärin, Rosengarten-Alvesen; Cram, Margret, Studienrätin i.R., Berlin; Cram, Dr. Georg-Martin, Unternehmens-Systemberater, Stadtbergen; Cram, Maike, Berlin; Cram, Jens, Mannheim; Cram, Ingrid, Betriebsleiterin, Tuxpan / Michoacan (Mexiko); Cram, Sabina, Mexico, DF (Mexiko); Cram, Silke, Wissenschaftlerin, Mexico DF (Mexiko); Cram, Björn, Aachen; Cram, Ella Anita, Rentnerin, Berlin; Cram, Berit, Greifswald; Cram-Gomez, Susanne, Mexico DF (Mexiko); Cram-Heydrich, Walter, Mexico DF (Mexiko); Cram-Heydrich, Kurt, Angestellter, Mexico DF (Mexiko); Duvenbeck, Brigitta, Oberstudienrätin i.R., Bad Homburg; Fund, Dr. Sven, Berlin; Gädeke, Gudula, M.A., Atemtherapeutin/Lehrerin, Tübingen; Gädeke, Martin, Einzelunternehmer, Würzburg; Lubasch, Dr. Annette, Ärztin, Berlin; Schütz, Dr. Christa, Ärztin, Mannheim; Schütz, Sonja, Berlin; Schütz, Juliane, Berlin; Schütz, Antje, Berlin; Schütz, Valentin, Berlin; Seils, Dorothee, Apothekerin, Stuttgart; Seils, Gabriele, Journalistin, Berlin; Seils, Dr. Clara-Eugenie, Oberstudienrätin i.R., Reppenstedt; Seils, Christoph, Journalist, Berlin; Siebert, John-Walter, Pfarrer, Oberstenfeld.

## Contents

### Research articles

Kathryn M. Schoenrock, Charles D. Amsler, James B. McClintock and Bill J. Baker

**Life history bias in endophyte infection of the Antarctic rhodophyte, *Iridaea cordata* — 1**

Sergio Escobar-Morales and David U. Hernández-Becerril

**Free-living marine planktonic unarmoured dinoflagellates from the Gulf of Mexico and the Mexican Pacific — 9**

Zakaria A. Mohamed and Abdulrahman M. Al-Shehri

**Biodiversity and toxin production of cyanobacteria in mangrove swamps in the Red Sea off the southern coast of Saudi Arabia — 23**

Megan I. Saunders, Elisa Bayraktarov, Chris M.

Roelfsema, Javier X. Leon, Jimena Samper-Villarreal,

Stuart R. Phinn, Catherine E. Lovelock and Peter J. Mumby

**Spatial and temporal variability of seagrass at Lizard Island, Great Barrier Reef — 35**

### Short communication

Vasileios Gerakaris and Konstantinos Tsiamis

**Sexual reproduction of the Lessepsian seagrass**

***Halophila stipulacea* in the Mediterranean Sea — 51**