Phycological Research

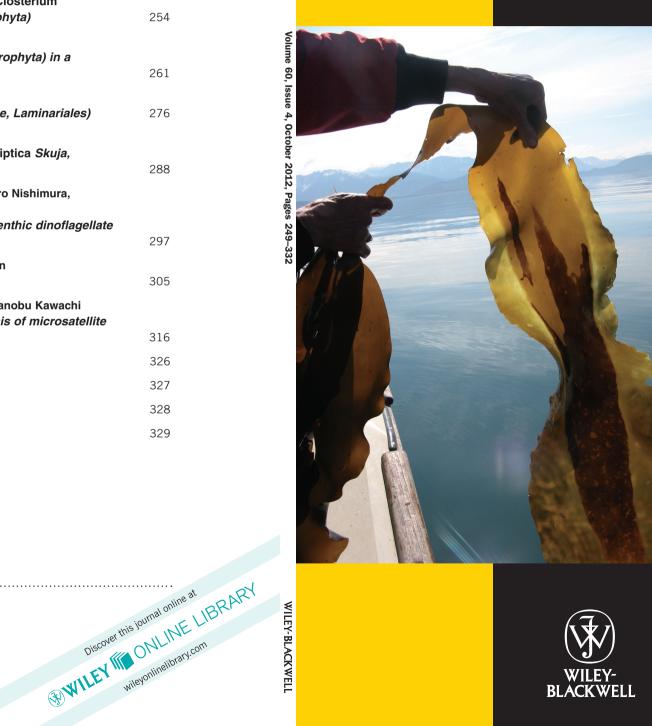
Volume 60 • Issue 4 • October 2012

Masahiro Suzuki, Tetsuo Hashimoto and Hisayoshi Nozaki Research note: Reproductive morphology of Gastroclonium pacificum (Champiaceae, Rhodymeniales) from Japan	249
Sachie Hori, Hiroyuki Sekimoto and Jun Abe Properties of cell surface carbohydrates in sexual reproduction of the Closterium peracerosum–strigosum–littorale <i>complex (Zygnematophyceae, Charophyta)</i>	254
Tania Spurkland and Katrin Iken Seasonal growth patterns of Saccharina latissima (Phaeophyceae, Ochrophyta) in a glacially-influenced subarctic estuary	261
Peter Martin and Giuseppe C. Zuccarello Molecular phylogeny and timing of radiation in Lessonia (Phaeophyceae, Laminariales)	276
Yan-ling Li, Zhi-jun Gong and Ji Shen Effects of eutrophication and temperature on Cyclotella rhomboideo-elliptica Skuja, endemic diatom to China	288
Haruo Yamaguchi, Takamichi Yoshimatsu, Yuko Tanimoto, Shinya Sato, Tomohiro Nishimura, Keita Uehara and Masao Adachi <i>Effects of temperature, salinity and their interaction on growth of the benthic dinoflagellate</i> Ostreopsis <i>cf.</i> ovata <i>(Dinophyceae) from Japanese coastal waters</i>	297
Virginia García-Ríos, Elvira Ríos-Leal, Daniel Robledo and Yolanda Freile-Pelegrin Polysaccharides composition from tropical brown seaweeds	305
Mikihide Demura, Mary-Hélène Noël, Fumie Kasai, Makoto M. Watanabe and Masanobu Kawachi Life cycle of Chattonella marina (Raphidophyceae) inferred from analysis of microsatellite marker genotypes	316
Corrigendum	326
Referees	327
Author Index	328
Subject Index	329

Phycological Research

Volume 60 · Is

ISSN 1322-0829





۲

ssue 4	•	October 2012	





۲

Phycological Research

EDITOR-IN-CHIEF

Ichiro Mine

Graduate School of Kuroshio Science, Kochi University, Japan

ASSOCIATE EDITORS

Olivier De Clerck Biology Department, Ghent University, Belgium	Daiske Honda Department of Biology, Faculty of Science and Engineering, Konan University, Japan	Mona Hoppenrath Senckenberg Research Institute, German Centre for Marine Biodiversity Research, Germany	Matthew L. Julius Department of Biological Sciences, St. Cloud State University, USA	Mitsunobu Kamiya Department of Marine Bioscience, Faculty of Biotechnology, Fukui Prefectural University, Japan
Ulf Karsten Institute of Biological Sciences, University of Rostock, Germany	Christos Katsaros Department of Botany, Faculty of Biology, University of Athens, Greece	Masanobu Kawachi Environmental Biology Division, National Institue for Environmental Studies, Japan	Gwang Hoon Kim Department of Biology, Kongju National University, Korea	Jeong Ha Kim Department of Biological Sciences, Sungkyunkwan University, Korea
Showe-Mei Lin Institute of Marine Biology, National Taiwan Ocean University, Taiwan	Shigeki Mayama Department of Biology, Tokyo Gakugei University, Japan	Hideaki Miyashita Department of Interdisciplinary Environment, Graduate School of Human and Environmental Studies, Kyoto University, Japan	Taizo Motomura Field Science Center for Nothern Biosphere, Hokkaido University, Japan	Rei Narikawa Graduate School of Arts and Sciences, University of Tokyo, Japan
Wendy Nelson National Centre of Aquatic Biodiversity and Biosecurity, New Zealand	Hiroyuki Sekimoto Department of Chemical and Biological Sciences, Faculty of Science, Japan Women's University, Japan	John West School of Botany, University of Melbourne, Australia	Giuseppe C. Zuccarello School of Biological Sciences, Victoria University of Wellington, New Zealand	

۲

This journal is available online at Wiley Online Library. Visit wileyonlinelibrary.com to search the articles and register for table of contents email alerts.

Access to this journal is available free online within institutions in the developing world through the AGORA initiative with the FAO, and the OARE initiative with UEP. For information, visit http://www.aginternetwork.org, www.oarescience.org.

AIMS AND SCOPE Phycological Research is published by the Japanese Society of Phycology and complements the Japanese Journal of Phycology. Those who wish to join the Society should send the application form (at the back of each issue of the Journal), together with payment, to the

Society of Phycology and complements the Japanese Journal of Phycology. The Journal publishes international, peerreviewed research dealing with all aspects of phycology to facilitate the international exchange of results. All articles are peer-reviewed by at least two researchers expert in the field of the submitted paper. *Phycological Research* has been credited by the International Association for Plant Taxonomy for the purpose of registration of new non-vascular plant names (including fossils). For further information see http://bgbm3.bgbm.fu-berlin.de/iapt/registration/journals/htm.

ABSTRACTING AND INDEXING SERVICES This journal is indexed by Aquatic Sciences & Fisheries Abstracts, BIOBASE, Biological Abstracts, BIOSIS Previews, Biotechnology & Bioengineering Abstracts, Cambridge Scientific Abstracts, Chemical Abstracts Service, Current Awareness in Biological Sciences, Current Contents, Ecological Abstracts, EMBASE/Excerpta Medica, Environmental Sciences and Pollution Management, GEOBASE, Irrigation and Drainage Abstracts, Microbiology Abstracts, Oceanic Abstracts, Pollution Abstracts, ProQuest (previously University Microfilms), Referativnyi Zhurnal, Science Citation Index (ISI), Soils and Fertilizers, Weed Abstracts, Zoological Record, National Inquiry Services Centre (NISC).

THE JAPANESE SOCIETY OF PHYCOLOGY We invite anyone who is interested in any aspect of phycology to become a member of the Society. As a member you will receive *Phycological Research* and the *Japanese Journal of Phycology* free of charge. The annual membership fee for individuals ¥8000. Members who reside outside Japan will receive only the English language journal *Phycological Research* and the annual membership fee is ¥7000 (standard), ¥5000 (student) Those who wish to join the Society should send the application form (at the back of each issue of the Journal), together with payment, to the Membership Secretary, Dr Chikako Nagasato, at the address given on the form. Members who wish to claim for missing or damaged issues should contact the Membership Secretary.

.....

ADDRESS FOR EDITORIAL CORRESPONDENCE Ichiro Mine, Graduate School of Kuroshio Science, Kochi University, 2-5-1 Akebono-cho, Kochi, Kochi 780-8520, Japan (E-mail: mine@kochi-u.ac.jp).

DISCLAIMER The Publisher, Society and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Society and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Society and Editors of the products advertised.

Copyright © 2012 Japanese Society of Phycology.

Cover Saccharina latissima collected in Cook Inlet, Gulf of Alaska. Mature thallus with sori (Left), thallus collected from the oceanic site (upper right) and from the glacially-influenced site (lower right). Photographs by Marilyn Berg. See Spurkland and Iken in this issue for detail.

Note to NIH Grantees

Pursuant to NIH mandate, Wiley-Blackwell will post the accepted version of contributions authored by NIH grant-holders to PubMed Central upon acceptance. This accepted version will be made publicly available 12 months after publication. For further information, see www.wiley.com/go/nihmandate.

For submission instructions, subscription and all other information visit http://wileyonlinelibrary.com/journal/pre

ISSN 1322-0829 (Print) ISSN 1440-1835 (online)

.....

PRE.JEB.Jan11

()

The Japanese Society of Phycology Officers for 2011–2012 President: Takeo Horiguchi Hokkaido University, University, Japan; Shinya Yoshikawa Fukui Japan Prefectural University, Japan Secretary: Kazuhiro Kogame Hokkaido University, Public Relations Secretary: Yukimasa Yamagishi Japan Fukuyama University, Japan Treasurer: Tsuyoshi Abe Hokkaido University, Japan Secretary for International Affairs: Shinya Uwai Niigata Membership Secretary: Chikako Nagasato Hokkaido University, Japan Members of Executive Council 2011-2012 Put O. Ang Jr. The Chinese University of Hong Shinichi Miyamura University of Tsukuba, Japan Kong, China Taizo Motomura Hokkaido University, Japan Alan T. Critchley Acadian Seaplants Limited, Canada Noboru Murase National Fisheries University, Japan Shinji Handa Hiroshima Environment & Health Takashi Nakada Keio University, Japan Association, Japan Yukihiko Serisawa University of Yamanashi, Japan Isao Inouye University of Tsukuba, Japan Satoshi Shimada Ochanomizu University, Japan Mitsunobu Kamiya Fukui Prefectural University, Japan Jiro Tanaka Tokyo University of Marine Science and Shigeo Kawaguchi Kyushu University, Japan Technology, Japan Hiroshi Kawai Kobe University, Japan Ryuta Terada Kagoshima University, Japan Taiju Kitayama National Museum of Nature and Haiime Yasui Hokkaido University, Japan Science, Japan Ikuo Yoshinaga Kyoto University, Japan

۲

JOIN THE JAPANESE SOCIETY OF PHYCOLOGY AND RECEIVE FOUR ISSUES OF PHYCOLOGICAL RESEARCH PER YEAR FREE OF CHARGE

The Japanese Society of Phycology, founded in 1952, currently has 760 members (including 105 overseas members). The Society is open to anyone who is interested in pure or applied aspects of phycology.

	лүү		cramp	
(Please type or write	in block letters)		Memb	ership starts from 2012
Name in full: (Family	name)		and initials)	
Mailing address:				
			(Postal code)	(Country)
Payment by: Card number:	□ Visa □ Maste 	erCard 🛛 American E Expiry date:		
Card number:		Expiry date:		
Signature:				
International posta	I money order			
Send application forn	n to: Shinya YOSHIKAWA Department of Marir Fukui Prefectural Ur 1-1 Gakuencho, Oba Fukui, 917-0003, Ja PHONE +81-770-52 FAX +81-770-52-96 Email: syoshika@fpu	ne Bioscience, niversity ama, apan 2-9608		

Application for membership

(4)

(ه)

۲