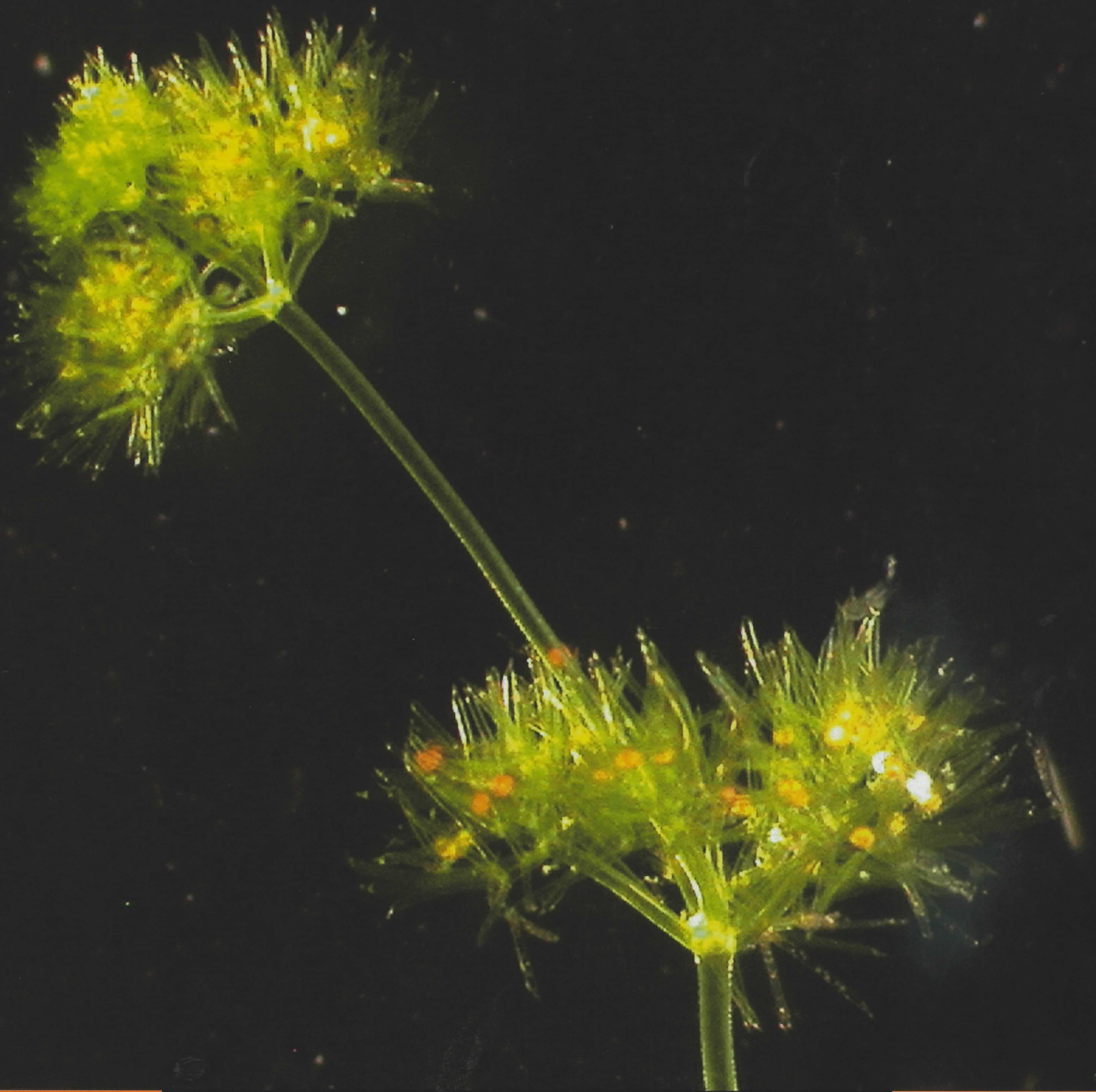


Phycological Research

Volume 56 • Issue 3 • September 2008

ISSN 1322-0829



WILEY-
BLACKWELL

The Japanese
Society of
Phycology

Phycological Research

EDITOR-IN-CHIEF

Ken-ichiro Ishida

Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan

ASSOCIATE EDITORS

John M. Archibald
Department of
Biochemistry and
Molecular Biology,
Dalhousie University,
Canada

Olivier De Clerck
Biology Department,
Ghent University,
Belgium

Yuji Inagaki
Center for Computational
Science, University of
Tsukuba, Japan

Mitsunobu Kamiya
Department of Marine
Bioscience, Faculty of
Biotechnology, Fukui
Prefectural University,
Japan

Ulf Karsten
Institute of Aquatic
Ecology - Applied
Ecology - University of
Rostock, Germany

Ulf Karsten
Department of Biological
Sciences, University of
Rostock, Germany

Jeong Ha Kim
Department of Biological
Sciences,
Sungkyunkwan
University, Korea

Gwang Hoon Kim
Department of Biology,
Kongju National
University, Korea

Kazuhiko Koike
Graduate School of
Biosphere Science,
Hiroshima University,
Japan

Brian S. Leander
Departments of Zoology
and Botany, University
of British Columbia,
Canada

Shigeki Mayama
Department of Biology,
Tokyo Gakugei Univer-
sity, Japan

Hideaki Miyashita
Department of Technol-
ogy and Ecology, Grad-
uate School of Global
Environmental Studies,
Kyoto University, Japan

Taizo Motomura
Field Science Center for
Northern Biosphere,
Hokkaido University,
Japan

Hisayoshi Nozaki
Department of Biological
Sciences, Graduate
School of Science,
University of Tokyo,
Japan

Makoto Watanabe
Graduate School of Life
and Environmental
Sciences, University of
Tsukuba, Japan

John West
School of Botany, Univer-
sity of Melbourne, Aus-
tralia

Giuseppe C. Zuccarello
School of Biological
Sciences,
Victoria University of
Wellington,
New Zealand

This journal is available online. Visit <http://www.blackwell-synergy.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*. The Journal publishes international, peer-reviewed 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 Mitsunobu Kamiya, 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 Ken-ichiro Ishida, Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki 305-8572, Japan (E-mail: ishida@sakura.cc.tsukuba.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.

© 2008 Japanese Society of Phycology.

This publication is supported in part by a Grant-Aid for Publication of Scientific Research Results from the Japan Society for the Promotion of Science (JSPS).

Cover Part of *Nitella gracillima* thallus.

For submission instructions, subscription and all other information visit
<http://www.blackwellpublishing.com/pre>

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

The Japanese Society of Phycology

Officers for 2007-2008

President: Hiroshi Kawai, Kobe University Research
Center for Inland Seas, Kobe 657-8501, Japan
Secretary: Takeaki Hanyuda, Kobe University
Research Center for Inland Seas, Kobe 657-8501,
Japan
Public Relations Secretary: Yukimasa Yamagishi, Faculty
of Life Science and Biotechnology, Fukuyama
University, Fukuyama 729-0292, Japan

Membership Secretary: Mitsunobu Kamiya, Faculty of
Biotechnology, Fukui Prefectural University, Obama
917-0003, Japan
Secretary for International Affairs: Satoshi Shimada,
Creative Research Initiative Sousei, Hokkaido
University, Sapporo 060-0810, Japan
Treasurer: Daisuke Honda, Faculty of Science and
Engineering, Konan University, Kobe 658-8501, Japan.

Members of Executive Council 2007-2008

Hideomi Amano *Mie University, Japan*
Daisuke Fujita *Tokyo University of Marine Science and
Technology, Japan*
Yuji Fujita *Nagasaki University, Japan*
Shinji Handa *Hiroshima Environmental and Health
Association, Japan*
Yoshiaki Hara *Yamagata University, Japan*
Kyoko Hatano *Kyoto University, Japan*
Ken-ichiro Ishida *University of Tsukuba, Japan*
Masanobu Kawachi *National Institute for
Environmental Studies, Japan*
Akira Kurashima *Mie University, Japan*

Hideaki Miyashita *Kyoto University, Japan*
Taizo Motomura *Hokkaido University, Japan*
Tadahide Noro *Kagoshima University, Japan*
Shuji Ohtani *Shimane University, Japan*
Jeanine L. Olsen *University of Groningen, The
Netherlands*
Akira F. Peters *Roscoff, France*
Naotsune Saga *Hokkaido University, Japan*
Yoshihiro Shiraiwa *University of Tsukuba, Japan*
Jiro Tanaka *Tokyo University of Marine Science and
Technology, Japan*

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.

Application for membership

(Please type or write in block letters)

Membership starts from 2007

Name in full: _____,
(Family name) (Given name and initials)

Mailing address: _____

(Postal code) (Country)

Telephone: _____ Fax: _____

E-mail: _____ Interests: _____

Signature: _____ Date: _____

The annual fee for individual members is ¥8000

**(¥7000 for members who reside outside Japan, ¥5000 for students who submit a verifying
statement signed by their Chairperson or Head of Department)**

Payment by: ☐ Visa ☐ MasterCard ☐ American Express

Card number: _____ - _____ - _____ - _____ Expiry date: _____

Signature: _____

☐ International giro postal transfer (Postal Account No.: 01320-4-48748)

☐ International postal money order

Send application form to: Dr Mitsunobu Kamiya
Faculty of Biotechnology
Fukui Prefectural University
1-1 Gakuen-cho,
Obama 917-0003, Japan
Fax: +81 770 52 6003; email: jsp@wwwsoc.nii.ac.jp

Phycological Research

Volume 56 • Issue 3 • September 2008

Peter A. Siver, Paul B. Hamilton and Eduardo A. Morales <i>Brevilinea pocosinensis</i> Siver, Hamilton & Morales gen. et sp. nov., a new diatom (Bacillariophyceae) genus from North Carolina, USA	141
David U. Hernández-Becerril and Sofía A. Barón-Campis <i>New species of the diatom genus Fryxelliella (Bacillariophyta), Fryxelliella pacifica</i> sp. nov., from the tropical Mexican Pacific	149
Makoto Mizuno <i>Evolution of centric diatoms inferred from patterns of oogenesis and spermatogenesis</i>	156
Pilar García-Jiménez, Paul John L. Geraldino, Sung Ming Boo and Rafael R. Robaina <i>Red alga Grateloupia imbricata (Halymeniaceae), a species introduced into the</i> <i>Canary Islands</i>	166
M. Cecilia Gauna and Elisa R. Parodi <i>Green epi-endophytes in Hymenena falklandica (Rhodophyta) from the Patagonian coasts</i> <i>of Argentina: Preliminary observations</i>	172
Christian Boedeker, Tracy J. Farr and Wendy A. Nelson <i>Comparative culture experiments with filamentous members of the Bangiales (Rhodophyta)</i> <i>from New Zealand: Insights into ecologic adaptation and biogeography</i>	183
Andrew Peter Dean, Beatriz Estrada, James Martin Nicholson and David Charles Sigee <i>Molecular response of Anabaena flos-aquae to differing concentrations of phosphorus:</i> <i>A combined Fourier transform infrared and X-ray microanalytical study</i>	193
Hidetoshi Sakayama <i>Review: Taxonomy of Nitella (Charales, Charophyceae) based on comparative morphology of</i> <i>oospores and multiple DNA marker phylogeny using cultured material</i>	202
Hisato Ikegaya, Takahisa Hayashi, Tomomi Kaku, Kazuyoshi Iwata, Seiji Sonobe and Teruo Shimmen <i>Presence of xyloglucan-like polysaccharide in Spirogyra and possible involvement in</i> <i>cell-cell attachment</i>	216
