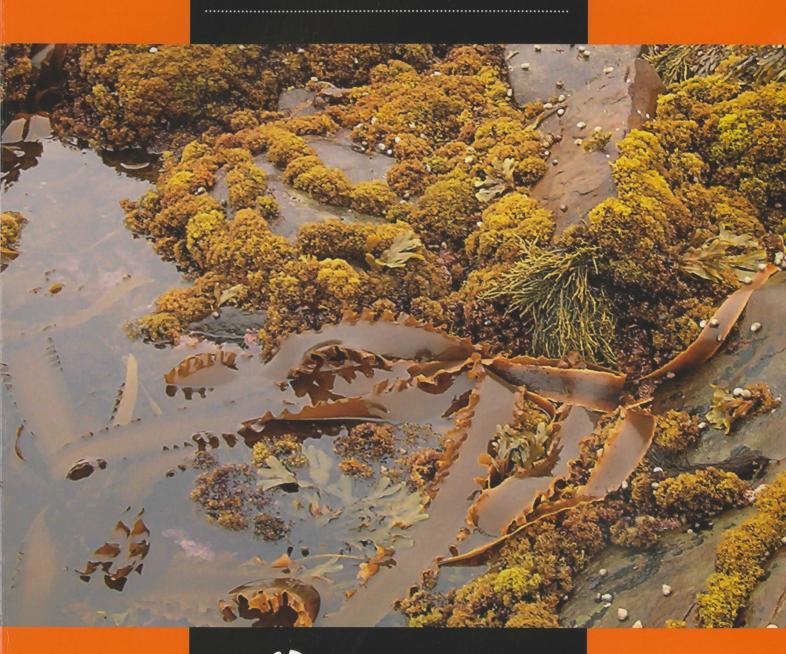
Phycological Research

Volume 53 • Issue 3 • September 2005

ISSN 1322-0829



Blackwell Publishing

The Japanese Society of Phycology

Phycological Research

EDITOR-IN-CHIEF

Kazuo Okuda

Graduate School of Kuroshio Science, Kochi University, Kochi, Japan

ASSOCIATE EDITORS

Antonio Flores-Moya Faculty of Science University of Málaga Spain

Christos Katsaros Faculty of Biology University of Athens Greece

Ichiro Mine Graduate School of Kuroshio Science, Kochi University Japan

Giuseppe C. Zuccarello School of Biological Sciences Victoria University of Wellington New Zealand Daisuke Fujita
Department of Marine
Biosciences
Tokyo University of
Marine Science and
Technology
Japan

Jeong Ha Kim Department of Biological Sciences Sungkyunkwan University

Taizo Motomura Field Science Center for Nothern Biosphere Hokkaido University Japan Gert Hansen Botanical Institute Univeristy of Copenhagen Denmark

Gwang Hoon Kim Department of Biology Kongju National University Korea

Orlando Necchi Jr Zoology and Botany Department São Paulo State University Brazil Ken-ichiro Ishida Graduate School of Natural Science & Technology Kanazawa Univeristy Japan

Kazuhiro Kogame Graduate School of Science Hokkaido University Japan

Hisayoshi Nozaki Graduate School of Science University of Tokyo Japan Ulf Karsten Institute of Aquatic Ecology - Applied Ecology - University of Rostock Germany

John W. La Claire II Section of Molecular Cell and Developmental Biology University of Texas at Austin USA

John West School of Botany University of Melbourne Australia

EDITORIAL ADVISORY BOARD

Yuji Fujita *Nagasaki, Japan* Terumitsu Hori *Tsukuba, Japan* Takeo Horiguchi *Hokkaido, Japan* Ichiro Imai *Kyoto, Japan* Hironao Kataoka *Sendai, Japan*

Hiroshi Kawai *Kobe, Japan* Dieter G. Müller *Konstanz, Germany* Masao Ohno *Kochi, Japan* Megumi Okazaki *Tokyo, Japan* Robert Sheath *Guelph, Canada* Makoto M. Watanabe *Tsukuba, Japan* Yasutsugu Yokohama *Shizugawa, Japan* Isao Inouye *Tsukuba, Japan*

This journal is available online at Blackwell synergy. Visit http://www.blackwell-synergy.com to search the articles and register for table of contents email alerts.

AIMS AND SCOPE Phycological Research is published by the Japanese 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.fuberlin.de/iapt/registration/journals/htm.

ABSTRACTING AND INDEXING SERVICES The journal is indexed by BIOSIS Database, Cambridge Scientific Abstracts, Chemical Abstracts Service, Current Contents, Ecological Abstracts, EMBASE/Excerpta Medica, GEOBASE, UnCover, University Microfilms and Zoological Record.

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 Kazuo Okuda, Graduate School of Kuroshio Science, Kochi University, 2-5-1 Akebono-cho, Kochi 780-8520, Japan (email okuda@cc.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 rflect 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.

© 2005 Japanese Society of Phycology.

The clonal seaweed *Chondrus crispus* (top) and the unitary seaweed *Laminaria saccharina* (bottom) from the Atlantic coast of Canada. See Ricardo Scrosati in this issue.

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

ISSN 1322-0829 (Print) ISSN 1440-183 (online)

The Japanese Society of Phycology

Officers for 2005-2006

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,

Public Relations Secretary: Satoshi Shimada, Center for Advanced Science and Technology, Hokkaido University, Sapporo 060-0810, Japan

Membership Secretary: Mitsunobu Kamiya, Faculty of Biotechnology, Fukui Prefectural University, Obama 917-0003, Japan

Secretary for International Affairs: Ken-ichiro Ishida, Faculty of Science, Kanazawa University, Kanazawa 920-1192, Japan

Treasurer: Daiske Honda, Faculty of Science and Engineering, Konan University, Kobe 658-8501, Japan.

Members of Executive Council 2005-2006

Tetsuro Ajisaka Kyoto University

Daisuke Fujita Tokyo University of Marine Science and

Technology

Yoshiaki Hara Yamagata University Takeo Horiguchi Hokkaido University Masahiko Idei Bunkyo University Ichiro Imai Kyoto University Isao Inouye University of Tsukuba Ken-ichiro Ishida Kanazawa University Tadahiko Kajiwara Yamaguchi University Shigeo Kawaguchi Kyushu University Akira Kurashima Mie University Miyuki Maegawa Mie University Tamotsu Nagumo The Nippon Dental University

Tadahide Noro Kagoshima University Kazuo Okuda Kochi University Naotsune Saga Hokkaido University Makoto Yoshizaki Toho University

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

(Flease type of write ii	n block lette	ers)		Memb	pership starts from 200
Name in full:					
Mailing address:					4
Telephone:			Fax:	(Postal code)	(Country)
	mail:				
Signature:					
	nbers who	reside outside	Japan, ¥500	mbers is ¥8000 0 for students who or Head of Departme	
Payment by:	□ Visa	☐ MasterCard	☐ American E	Express	
	_	Exp	oiry date:		
Card number:					
Card number: Signature:					

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:jsphycol@anet.ne.jp

Phycological Research

Volume 53 • Issue 3 • September 2005

Cristian R. Bulboa and Edison J. de Paula	
Introduction of non-native species of Kapp <mark>aphyc</mark> us (Rhodophyta, Gigartinales) in subtropical waters: Comparative analysis of growth rates of Kappaphycus alvarezii and Kappaphycus striatum in vitro and in the sea in south-eastern Brazil	18
Elena Safonova and Werner Reisser Growth promoting and inhibiting effects of extracellular substances of soil microalgae and cyanobacteria on Escherichia coli and Micrococcus luteus	18
Orlando Necchi Júnior and Morgan L. Vis Reproductive ecology of the freshwater red alga Batrachospermum delicatulum (Batrachospermales, Rhodophyta) in three tropical streams	19
Yoshimasa Yamamoto and Hiroyuki Nakahara Competitive dominance of the cyanobacterium Microcystis aeruginosa in nutrient-rich culture conditions with special reference to dissolved inorganic carbon uptake	20
Teresa C. S. Sigaud-Kutner, Ernani Pinto, Ana M. P. Neto and Pio Colepicolo Changes in antioxidant enzyme activities, malondialdehyde, and glutathione contents in the dinoflagellate Lingulodinium polyedrum (Dinophyceae) grown in batch-cultures	20
Michael J. Wynne Chrysymenia tigillis sp. nov. (Rhodymeniales, Rhodophyta) from the Sultanate of Oman, with a census of currently recognized species in the genus Chrysymenia	21
Ricardo Scrosati Review of studies on biomass-density relationships (including self-thinning lines) in seaweeds: Main contributions and persisting misconceptions	22
Etienne Jean Faye, Satoshi Shimada, Shigeo Kawaguchi and Michio Masuda Characterization of the edible red alga Meristotheca papulosa (Solieriaceae, Gigartinales) from Japan	23
Corrigendum	24

