

CONTENTS

Editorial

- Greetings from the new Editor-in-Chief Makoto Matsuoka 1

Rapid Paper

- Disruption of a Gene Encoding C₄-Dicarboxylate Transporter-Like Protein Increases Ozone Sensitivity Through Deregulation of the Stomatal Response in *Arabidopsis thaliana* Shoko Saji, Srinivas Bathula, Akihiro Kubo, Masanori Tamaoki, Machi Kanna, Mitsuko Aono, Nobuyoshi Nakajima, Tatsuro Nakaji, Tomomi Takeda, Munehiko Asayama and Hikaru Saji 2

Regular Papers

- Binary Reducing Equivalent Pathways Using NADPH-Thioredoxin Reductase and Ferredoxin-Thioredoxin Reductase in the Cyanobacterium *Synechocystis* sp. Strain PCC 6803 Shoko Hishiyama, Wakako Hatakeyama, Yoko Mizota, Naomi Hosoya-Matsuda, Ken Motohashi, Masahiko Ikeuchi and Toru Hisabori 11
- Relationships Between Quantum Yield for CO₂ Assimilation, Activity of Key Enzymes and CO₂ Leakiness in *Amaranthus cruentus*, a C₄ Dicot, Grown in High or Low Light Youshi Tazoe, Yuko T. Hanba, Tsuyoshi Furumoto, Ko Noguchi, Ichiro Terashima 19
- Tissue and Cell-Specific Localization of Rice Aquaporins and Their Water Transport Activities Junko Sakurai, Arifa Ahamed, Mari Murai, Masayoshi Maeshima and Matsuo Uemura 30
- Calcium Efflux as a Component of the Hypersensitive Response of *Nicotiana benthamiana* to *Pseudomonas syringae* Lev G. Nemchinov, Lana Shabala and Sergey Shabala 40
- Three Type-B Response Regulators, ARR1, ARR10 and ARR12, Play Essential but Redundant Roles in Cytokinin Signal Transduction Throughout the Life Cycle of *Arabidopsis thaliana* Kai Ishida, Takafumi Yamashino, Akihiro Yokoyama and Takeshi Mizuno 47
- Ultrastructural Characterization of Exine Development of the *transient defective exine I* Mutant Suggests the Existence of a Factor Involved in Constructing Reticulate Exine Architecture from Sporopollenin Aggregates* Tohru Ariizumi, Takahiro Kawanabe, Katsunori Hatakeyama, Shusei Sato, Tomohiko Kato, Satoshi Tabata and Kinya Toriyama 58
- Function of Jasmonate in Response and Tolerance of *Arabidopsis* to Thrip Feeding Hiroshi Abe, Jun Ohnishi, Mari Narusaka, Shigemi Seo, Yoshihiro Narusaka, Shinya Tsuda and Masatomo Kobayashi 68
- The Model Plant *Medicago truncatula* Exhibits Biparental Plastid Inheritance Ryo Matsushima, Yingchun Hu, Kazuhiro Toyoda, Sodmergen and Wataru Sakamoto 81
- Contribution of the GABA shunt to hypoxia-induced alanine accumulation in roots of *Arabidopsis thaliana* Yo Miyashita and Allen G. Good 92
- Variation in Storage α -Glucans of the Porphyridiales (Rhodophyta) Takahiro Shimonaga, Mai Konishi, Yasunori Oyama, Shoko Fujiwara, Aya Satoh, Naoko Fujita, Christophe Colleoni, Alain Buléon, Jean-Luc Putaux, Steven G. Ball, Akiko Yokoyama, Yoshiaki Hara, Yasunori Nakamura and Mikio Tsuzuki 103

*This paper is the Editor-in-Chief's choice and is available free online at <http://pcp.oxfordjournals.org>

Short Communications

Polyethylene Glycol (PEG)-Mediated Transient Gene Expression in a Red Alga, <i>Cyanidioschyzon merolae</i> 10D	Mio Ohnuma, Takashi Yokoyama, Takayuki Inouye, Yasuhiko Sekine and Kan Tanaka	117
The Autoregulation of Nodulation Mechanism is Related to Leaf Development	Sayuri Ito, Taichi Kato, Norikuni Ohtake, Kuni Sueyoshi and Takuji Ohyama	121
Analysis of GDP-D-Mannose Pyrophosphorylase Gene Promoter from Acerola (<i>Malpighia glabra</i>) and Increase in Ascorbate Content of Transgenic Tobacco Expressing the Acerola Gene	Adebanjo A. Badejo, Nobukazu Tanaka and Muneharu Esaka	126

Erratum		133
----------------	--	-----

PLANT AND CELL PHYSIOLOGY is published 12 times per year and together with its Supplement (Abstracts of the Annual Meeting of the Japanese Society of Plant Physiologists). Please conform to the Instructions for Authors (published at the back of issue 1). **Submit manuscripts** to <http://mc.manuscriptcentral.com/pcp>

Address all correspondence related to membership, orders for back copies before 2001 to: The Japanese Society of Plant Physiologists, Shimotachiuri, Ogawa Higashi, Kamikyo-ku, Kyoto, 602-8048 Japan (Fax: +81-(0)75-415-3662; E-mail: jspp@nacos.com).

All enquiries related to advertisements should be sent to: Steve Simmonds, Advertising Sales, Journal Division, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK (Telephone: +44(0)1865 354637 Fax: +44(0)1865 353774; E-mail: steve.simmonds@oxfordjournals.org).

All enquiries about institutional and non-member personal subscriptions should be sent to: Journals Subscriptions Department, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK (Telephone: +44 (0)1865 267907 Fax: +44 (0)1865 267485; E-mail: jnlorders@oxfordjournals.org).

Address orders for back copies to: Oxford Journals, Oxford University Press, Tokyo 4-5-10-8F Shiba, Minato-ku, Tokyo 108-8386, Japan. Tel: +81 3 5444 5858; Fax: +81 3 3454 2929; E-mail: oupj-cs@po.ijnet.or.jp.

Keep up-to-date with the latest contents of Plant and Cell Physiology by registering for our eTOC service at <http://www3.oup.co.uk/jnls/tocmail/> This service is freely available to all, no subscription required.

Notice about photocopying

In order to photocopy any work from this publication, you or your organization must obtain permission from the following organization which has been delegated for copyright for clearance by the copyright owner of this publication.

Outside of the U.S.A.

The Copyright Council of the Academic Societies,
41-6 Akasaka 9-chome, Minato-ku, Tokyo 107, Japan
Phone: 81-3-3475-4621, Fax: 81-3-3403-1738

In the U.S.A.

Copyright Clearance Center, Inc.
222 Rosewood Drive, Danvers, MA 01923, U.S.A.
Phone: (508) 750-8400, Fax: (508) 750-4744

Published by Oxford University Press on behalf of the Japanese Society of Plant Physiologists.
Typeset by Cepha Imaging Pvt Ltd, Bangalore, India. Printed by Nakanishi Printing Co., Ltd., Kyoto, Japan.