



Plant Genetic Resources: Characterization and Utilization

Volume 8 2010 ISSN: 1479-2621

Aims and Scope

The journal provides a forum for describing the application of novel genomic technologies, as well as their integration with established techniques, towards the understanding of the genetic variation captured in both *in situ* and *ex situ* collections of crop and non-crop plants; and for the airing of wider issues relevant to plant germplasm conservation and utilisation. We particularly welcome multi-disciplinary approaches that incorporate both a technical and a socio-economic focus.

Technical aspects can cover developments in technologies of potential or demonstrated relevance to the analysis of variation and diversity at the phenotypic and genotypic levels; the development of rational germplasm collection, evaluation and conservation strategies; and the impact of crop genetic modification and biotechnology on plant genetic resources. Authors should note that the journal will not review submissions using the RAPD marker system, except where very large numbers of assays place a cost limitation on the analysis, or where RAPD data is combined with, and is co-analysed with other forms of descriptive data, which allows an objective means of assessing the credibility of the RAPDs.

Non-technical aspects can include ethical, legal, commercial and social issues of relevance, in particular relating to farmers' rights, intellectual property and ethnobotany.

Editor-in-Chief

Robert Koebner CropGen International, UK plantgeneticresources@googlemail.com

Editorial Board

- M. T. Abberton, *Institute of Grassland and Environmental Research*, UK
- A. Beharav, University of Haifa, Israel
- D. Bertioli, University of Brasilia, Brazil
- H. Bockelman, National Small Grains Collection, USA
- C. Fatokun, *International Institute of Tropical Agriculture, Nigeria*
- B. Ford-Lloyd, University of Birmingham, UK
- D. Jarvis, International Plant Genetic Resources Institute, Italy

- J. Jia, Chinese Academy of Agricultural Sciences, China
- U. C. Lavania, Central Institute of Medicinal & Aromatic Plants, India
- R. J. Smith, Royal Botanic Gardens Kew, UK
- S. Smith, *Pioneer Hi-Bred International Inc,*
- R. Tuberosa, *University of Bologna, Italy*
- R. Varshney, *International Crops Research Institute for the Semi-Arid Tropics, India*

Cover image: Whole plant of *Chlorophytum borivillianum* showing medicinally/nutraceutically important fascicular roots. (Photo by U. C. Lavania.)

2010 Cambridge University Press. All rights reserved Published by Cambridge University Press (a division of Cambridge University Press), Cambridge CB2 8RU: New York, NY 10013-2473

Plant Genetic Resources Characterization and Utilization

Contents

Genetic erosion in crops: concept, research results and challenges Mark van de Wouw, Chris Kik, Theo van Hintum, Rob van Treuren and Bert Visser	1
Genetic reticulation and interrelationships among <i>citrullus</i> species as revealed by joint analysis of shared AFLPs and species-specific SSR alleles Padmavathi Nimmakayala, Yan R. Tomason, Jooha Jeong, Sathish K. Ponniah, Anoji Karunathilake, Amnon Levi, Ramasamy Perumal and Umesh K. Reddy	16
Protecting and preserving traditional knowledge and plant genetic resources: is ASEAN there yet? Jane G. Payumo, Raymond Jussaume and Howard D. Grimes	26
Morphologic variation in the USDA/ARS rhubarb germplasm collection Alberto Pantoja and Joseph C. Kuhl	35
Short Communication SSR marker-based DNA fingerprinting and cultivar identification of rice (<i>Oryza sativa</i> L.) in Punjab state of India Navraj K. Sarao, Yogesh Vikal, Kuldeep Singh, Monika A. Joshi and R. C. Sharma	42
Identification of geographical gaps in the pearl millet germplasm conserved at ICRISAT genebank from West and Central Africa H. D. Upadhyaya, K. N. Reddy, M. Irshad Ahmed, C. L. L. Gowda and B. I. G. Haussmann	45
Short Communication Screening barnyard millet germplasm against grain smut (<i>Ustilago panici-frumentacei</i> Brefeld) <i>Arun Gupta, Deeksha Joshi, Vinay Mahajan and H. S. Gupta</i>	52
Selection of alfalfa cultivars adapted for tropical environments with repeated measures using PROC MIXED of SAS® System G. M. L. de Assis, A. C. Ruggieri, M. E. Z. Mercadante, G. M. F. de Camargo and J. M. Carneiro Júnior	55
Genetic relationships among napiergrass (<i>Pennisetum purpureum</i> Schum.) nursery accessions using AFLP markers	
Karen Harris, William Anderson and Ravindra Malik	63
Short Communication Assessment of oil content and fatty acid composition variability in different peanut subspecies and botanical varieties M. L. Wang, C. Y. Chen, J. Davis, B. Guo, H. T. Stalker and R. N. Pittman	71
Whole grain morphology of Australian rice species S. Kasem, D. L. E. Waters, N. Rice, F. M. Shapter and R. J. Henry	74
Morphological, ecological and genetic variability of <i>Lavandula luisieri</i> (Rozeira) Rivas-Martínez in central eastern Portugal	
Fernanda Delgado, Sílvia Ribeiro, Álvaro Alves, Eliseu Bettencourt and Sónia Dias	82
Reviewers of PGR for 2009	91

Plant Genetic Resources Characterization and Utilization

journals.cambridge.org/pgr

Publishing, Production, Marketing and Subscription Sales Office:

Cambridge University Press The Edinburgh Building Shaftesbury Road Cambridge CB2 8RU

For Customers in North America:

Cambridge University Press Journals Fullfillment Dept 100 Brook Hill Drive West Nyack 10994-2133 USA

Publisher: Katy Christomanou

Plant Genetic Resources: Characterization and Utilization is an international journal published tri-annually by Cambridge University Press in April, August and December on behalf of NIAB. The online edition is available at journals.cambridge.org/pgr.

Special sales and supplements:

This Journal accepts advertising and inserts. We also provide bulk reprints of suitable papers to meet teaching or promotional requirements. The Journal also publishes proceedings on behalf of academic and corporate sponsors. Please contact Katy Christomanou at the Cambridge address above.

Subscription information:

The subscription rates for Volume 8, 2010 (3 issues) are: Institutional subscription Internet/Print Package £300.00/\$576.00 (Americas only) Internet only £240.00/\$463.00 (Americas only) Print only £278.00/\$535.00 (Americas only)

Any **supplements** to this Journal published in the course of the annual volume are normally supplied to subscribers at no extra charge.

Back volumes are available. Please contact CUP Publishing for further information.

Claims for non-receipt of journal issues will be considered on their merit and only if the claim is received within six months of publication. Replacement copies supplied after this date will be chargeable.

US POSTMASTERS: please send address corrections Plant Genetic Resources USA address.

Information for Authors:

Please email manuscript (with any accompanying figures or tables) to the Journal Administrator Faye Kalloniatis at plantgeneticresources@googlemail.com

Notes for Authors are available on the internet at journals.cambridge.org/pgr

Offprints: The corresponding author of an accepted paper will receive a pdf offprint. Additional offprints are available for a fee and should be ordered at proof stage. **No page charges or submission charges are levied by this journal.**

Copyright: NIAB 2010. All rights reserved: permission for reproduction of any part of the journal (text, figures, tables or other matter) in any form (on paper, microfiche or electronically) should be sought directly from CUP or a licence permitting restricted copying obtained from the Copyright Licensing Agency, Tottenham Court Road, London WIP 9HE, UK, or in the USA from the Central Clearance Center, 27 Congress Street, Salem MA 01970.

Disclaimer: The information contained herein, including any expression of opinion and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable, but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk.

CUP uk_journals_customerservice does not accept responsibility for any trade advertisement included in this publication.

Printed by Latimer Trend, Plymouth, UK.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.