



# Plant Genetic Resources: Characterization and Utilization

Volume 7 2009 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 Norwich, UK plantgeneticresources@googlemail.com

### **Editorial Board**

- M. T. Abberton, *Institute of Grassland and Environmental Research*, UK
- A. Beharav, University of Haifa, Israel
- 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, USA*
- 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.)

2009 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**

Diversity of Ethiopian tetraploid wheat germplasm: breeding opportunities for improving grain yield potential and quality traits	
Yifru Teklu and Karl Hammer	1
Polymorphism in Gloriosa superba	
Seemanti Ghosh, Biswajit Ghosh and Sumita Jha	9
EST-PCR markers representing watermelon fruit genes are polymorphic among watermelon heirloom cultivars sharing a narrow genetic base	
Amnon Levi, Patrick Wechter and Angela Davis	16
Genetic diversity in the USDA <i>Limnanthes</i> germplasm collection assessed by simple sequence repeats	
Linda M. Donnelly, Maria M. Jenderek, James P. Prince, Patrick A. Reeves, Allan Brown and Richard M. Hannan	33
Ecological characterization of wild <i>Helianthus annuus</i> and <i>Helianthus petiolaris</i> germplasm in Argentina	
Monica Poverene, Miguel Cantamutto and Gerald J. Seiler	42
Farmers' management of rice varietal diversity in the mid-hills of Nepal: implications for on-farm conservation and crop improvement	
R. B. Rana, C. J. Garforth and B. R. Sthapit	50
Recent changes in varietal diversity of rice in Guinea  M. B. Barry, A. Diagne, M. J. Sogbossi, J. L. Pham, S. Diawara and N. Ahmadi	63
Aphid feeding response and microsatellite-based genetic diversity among diploid Brachypodium distachyon (L.) Beauv accessions	
Perumal Azhaguvel, Wanlong Li, Jackie C. Rudd, Bikram S. Gill, G. J. Michels Jr and Yiqun Weng	72
Short Communication Resveratrol content in seeds of peanut germplasm quantified by HPLC	
M. L. Wang and R. N. Pittman	80
Genetic and geographical divergence in horse gram germplasm from Andhra Pradesh, India N. Sunil, N. Sivaraj, S. R. Pandravada, V. Kamala, P. Raghuram Reddy and K. S. Varaprasad	84
Variation in south Asian wheat germplasm for seedling drought tolerance traits  Umesh R. Rosyara, Amrit A. Ghimire, Sushil Subedi and Ram C. Sharma	88
Reviewers of PGR for 2008	94

# 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 7, 2009 (3 issues) are: Institutional subscription Internet/Print Package £288.00/\$554.00 (Americas only) Internet only £231.00/\$445.00 (Americas only) Print only £267.00/\$514.00 (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 2009. 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.