

In this Issue

This issue of *Plant Genetic Resources: Characterization & Utilization* comprises six full research papers and five short communications. The species featured range from one of the world's leading crops (wheat) to *Malacomeles denticulata*, a Mexican shrub species. In addition, there is a contribution from a germplasm conservator examining the robustness of germination tests – arguably a gene-bank's most critical routine procedures.

Full research papers

Microsatellite-based pre-selection in common bean landraces for conservation and breeding purposes

Jiménez and Korpelainen examine the diversity present in a collection of Nicaraguan common bean landraces, with a view to identifying materials of breeding interest. Rather than assaying in the conventional manner using random markers chosen to cover the whole genome, the strategy employed was to choose markers known *a priori* to be linked to QTL for yield components, pest resistance, root architecture and phenology. As expected from landrace material sampled from the centre of origin of a species, the material proved to be highly polymorphic at the microsatellite level, and the allelic constitution at some of the loci could be correlated with seed size.

Establishment of a cassava core subset based on morpho-agronomic descriptors

Bhattacharjee *et al.* describe the assembly of a core set of 428 cassava accessions extracted from the IITA collection of >2500 entries. Both the appropriate selection criteria and the sampling strategy for assembling a core set are controversial. Here, the primary driver was to use morpho-agronomic traits based on multiple-site field tests, and to include the contribution of the genotype × environment interaction.

Mapping olive germplasm on the basis of oil composition and plant morphology

Alba *et al.* set out to catalogue the variation shown by autochthonous olive cultivars from southern Italy, using

a set of quantitative descriptors of oil composition and plant morphology. The cultivars were classified into a number of groups, which could be related in specific ways to the geographical origin of the cultivars.

Genetic relationships among sweet cherry rootstocks

Turkoglu *et al.* analyse 184 sweet cherry rootstocks derived from a range of *Prunus* species, by applying a set of microsatellite assays to DNA harvested from green tissue and dormant buds. The material was highly polymorphic, with the number of alleles per locus ranging from 10 to 20. A cluster analysis demonstrated that the *P. avium* entries were genetically close to those of *P. cerasus*, while *P. amabaleb* and *P. angustifolia* were similarly related to one another.

Priority areas for collecting Malacomeles based on diversity and species richness indices

Núñez-Colín *et al.* provide a description of the distribution of five species of the genus *Malacomeles* in Mexico. The purpose of their study was to determine whether the use of species richness and various diversity indices could define the optimal regions for germplasm collection. Most of the diversity appears to be concentrated in NE Mexico (Sierra Madre Oriental province). *M. denticulata* is the major species present in Mexico, distributed mainly in the provinces of Transmexican Volcanic Axis, Mexican Plateau and Sierra Madre del Sur.

Ecological and sanitary characteristics of the Eurasian wild grapevine in Georgia

The authors report their survey of wild Eurasian grapevine (*Vitis vinifera* ssp. *sylvestris*) populations in the southern Caucasus, a taxon under threat from both forest clearing and the cultivation of north American vine stocks. The data collected relate to population structure, sex ratio, the identity of the major botanical species providing physical support and the incidence of insect pests and pathogens. The latter comprise mostly eryophid mites and downy or powdery mildew.

Apparent resistance against *Phylloxera* and root rot, and the lack of colonization by root-knot nematodes are particularly remarkable. The level of injury caused by parasitic organisms does not seem to represent a challenge for the survival of the wild Eurasian grapevine.

Short communications

Genetic variation among accessions of Chinese Spring wheat

Mott and Wang show that the model bread wheat cultivar Chinese Spring is in fact a genetically heterogeneous set of genotypes, as shown by a genotypic analysis of 13 representatives of the cultivar obtained from a number of different laboratories. An AFLP-based analysis revealed that most of the variation (99%) was between accessions. The outcome reminds wheat geneticists to take care when basing their experiments on Chinese Spring.

A tetraploid accession of *Capsicum* sp. from the eastern Himalayas

Jha *et al.* report the chromosome number of an accession of *Capsicum annuum* from Sikkim in the Himalayas, which appears to be double that of the normal diploid number of 24. The taxonomic status of the plant has yet to be determined.

Mapping wheat powdery mildew resistance derived from *Aegilops markgrafii*

Weidner *et al.* define the pattern of inheritance in wheat of resistance against infection by powdery mildew

expressed by introgression material bred from a wide cross with *Ae. markgrafii*. They show, based on segregation patterns in the F₂ generation, that there are two distinct resistance loci, one mapping to the chromosome arm 1AS and the other to 7AL. Whereas the former resistance is effective throughout the plant's life, the latter is only effective at the seedling stage.

The reliability of germination testing of ex situ conserved seeds

van Hintum and van Treuren have systematically studied the robustness of routine germination tests carried out by genebank conservators to determine when an accession needs to be rejuvenated. Their blind re-testing of a large random set of samples showed an alarmingly low level of reproducibility. The 95% confidence interval of a germination test of a random sample with a germination score of 80% was between 63 and 97%. The variation differed strongly over crops and testing years, and was particularly large for crop wild relatives.

Elevated levels of the antimalarial compound artemisinin among *Artemisia annua* accessions

Cockram *et al.* report a screen for artemisinin content among 70 accessions of *A. annua*, resulting in the identification of individuals producing over 2% artemisinin. These have been maintained as vegetative clones, and represent a promising source of germplasm for an *A. annua* breeding programme.

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