XVIII international botanical congress
IBC2011

CONGRESSNEWS

XVIII INTERNATIONAL BOTANICAL CONGRESS | 23-30 JULY 2011 | MELBOURNE AUSTRALIA **THURSDAY 28 JULY 2011**

Could we grow drugs using sunflowers?

Queensland researchers believe future cancer drugs could be grown in sunflowers and ultimately delivered as a seed 'pill'.

They're a long way from that outcome. But, as they told delegates at IBC 2011 on Wednesday, they have already shown that sunflowers make a precursor to cancer drugs as part of their defence against insect attack.

The precursor, a small ring-like protein fragment known as SFTI, has already shown potential as a cancer treatment. Until now, however, it has been considered too expensive to produce by conventional means.

This could all change, using plants as factories, says Dr Joshua Mylne of the Institute for Molecular Bioscience at the University of Queensland.

"Although SFTI and related proteins have shown great promise as drug templates, the cost to manufacture them has been a significant barrier to their widespread use," Dr Mylne said.

"This issue could be solved using sunflowers. Seeds are an attractive system for the production of pharmaceuticals, as they are cheap to grow, and their contents remain stable at room temperature and are sterile inside the seed coat.

"There are also established systems in place for seed production, harvest, storage and transportation, meaning they could be the ultimate low-cost drug delivery system."

Through transferring and studying the relevant genes in the model plant *Arabidopsis*, the thale cress, Dr Mylne demonstrated that SFTI emerges from within a much larger and unrelated protein. It arises as an "extra", he says. In fact, the fragment is an offcut, chopped off as part of the production process. Interestingly, a similar ring construction system seems to have evolved independently at least three times.

Powerhouse presentations at Rapid Fire sessions

Kyoko Sugai

Shizuka Tsuneki

Michael Whitehead

Bihe Xiu

Short talks by student ePoster presenters in Plenary Halls 2 & 3 today 12-15pm to 1-30pm. Not to be missed.

IdentifyLife launch

"The beginning of wisdom is to call a thing by its right name."
Chinese proverb

IdentifyLife is being launched at 1.00pm today.

The *IdentifyLife* project is bringing together a huge range of identification keys into a free, web-based platform for indexing, searching and building identification keys, making identifications and managing descriptive data. See the website at www.identifylife.org/

IdentifyLife consists of three components:

1. *Keys Central* – a searchable index of identification keys to a wide range of living creatures, from aardvarks to zooplankton.

2. *My IdentifyLife* – your space for getting involved; a personal home page and collaboration space where experts and enthusiasts can contribute keys, build keys and take part in projects and discussions.

3. *A Key to All Life* – is building, over time, a flexible and powerful but simple key that can be used to identify any living creature from anywhere in the world.

"With the right name, the world's treasure trove of information, from library books to web pages, becomes accessible. If you don't know what something's called, you can't find out whether it's poisonous or harmless, common or rare, a pest or an important native." Dr Kevin Thiele, Director of *IdentifyLife* said.

"As a contributor, you can create your own IdentifyLife projects, or join other people's projects. For example, one group of users may create a list of characters for ferns, another group may build an interactive identification key to the butterflies of Australia." Kevin Thiele, Director of *IdentifyLife* explained.

"The world is full of extraordinary organisms, from trees, mammals and fish to diatoms, amoebae and bacteria. The *IdentifyLife* project is all about helping people to identify these living organisms." Dr Thiele continued.

"*IdentifyLife* provides the space, and users provide the knowledge, imagination and enthusiasm to use it for their own work while sharing their work with others. Once published online, the information from *IdentifyLife* feeds into the Atlas of Living Australia, an online encyclopedia of Australian biodiversity." said Donald Hobern, Director of the Atlas of Living Australia.

Species affected by climate change: to shift or not to shift?

Relocating species threatened by climate change is a radical and hotly debated strategy for maintaining biodiversity. In a paper published in the journal *Nature Climate Change*, researchers from CSIRO, University of Queensland and United States Geological Survey present a pragmatic decision framework for determining when, if ever, to move species in the face of climate change.

"As our climate changes more rapidly than species can adapt or disperse, natural resource managers increasingly want to know what adaptation options are available to help them conserve biodiversity," said co-author, CSIRO researcher and research fellow at the University of Queensland Dr Eve McDonald-Madden.

Co-author Dr Hugh Possingham, also from the University of Queensland, will speak about the paper at the XVIII International Botanical Congress in Melbourne today.

Managed relocation, also known as assisted colonisation, of species involves moving plants or animals from an area that is, or will become, untenable because of climate change, to areas where there are more suitable climatic conditions but in which the plants or animals have not occurred previously.

"While the virtues of managed relocation of species are being debated by the scientific community, the reality is that it is already occurring.

"The decision-making framework we have developed shows that the best timing for moving species depends on many factors such as: the size of the population, the expected losses in the population through relocation, and the expected numbers that the new location could be expected to support.

"It would also rely on good predictions about the impact of climate shifts on a particular species and the suitability of areas to which they can move – an often difficult issue in the case of rare species because we just don't have this sort of detailed information," Dr McDonald-Madden said.

CSIRO researcher Dr Tara Martin said monitoring and learning about how potentially climate change-affected plants and animals function in their 'native' ecosystems will play a crucial role in ensuring that managed relocation plans succeed.

"Active adaptive management is important when we are unsure of what the climatic changes are likely to be in the current habitat.

"Our framework provides managers with a rational basis for making timely decisions under uncertainty to ensure species persistence in the long-term" Dr Martin said

"Without relocating species we are destined to lose some of our most important and iconic wildlife, but at the end of the day we also need viable ecosystems into which we can move species.

"Managed relocation is not a quick fix. It will be used in some specific circumstances for species that we really care about, but it will not be a saviour for all biodiversity in the face of climate change," Dr Martin said.

Eucalyptus genetic secrets unlocked

The world's most farmed tree has had its genome read, opening the way to new breeding, biofuel, and conservation opportunities.

The genome of one of Australia's biggest Eucalyptus trees, the Flooded Gum or *Eucalyptus grandis*, has now been mapped, allowing scientists and conservationists an insight into the secrets of an important piece of Australiana.

Eucalyptus has become the most popular plantation tree in the world – with millions of hectares planted in Africa, America, Europe and Asia. That's one of the reasons that the global community chose a eucalyptus species to map.

In a joint project by the US Department of Energy Joint Genome Institute (JGI) and the Eucalyptus Genome Network (www.eucagen.org) coordinated by Professor Zander Myburg from the University of Pretoria in South Africa, the genetic code of a specimen of Flooded Gum from Brazil has been mapped and released to researchers.

An international meeting of scientists was held on Tuesday, as part of the XVIII International Botanical Congress, to discuss opportunities for research resulting from this important milestone. Australian tree breeders will also be briefed.

"This is one the biggest boosts to forest research in Australia that we have ever had," explains Professor Bill Foley from the Research School of Biology at the Australian National University.

"Eucalyptus grandis is only the second forest tree to have its full genome mapped. It is an important tree in forests along the east coast of New South Wales and Queensland and a valuable fibre resource worldwide. It is also being considered for biofuel programs both here and overseas."

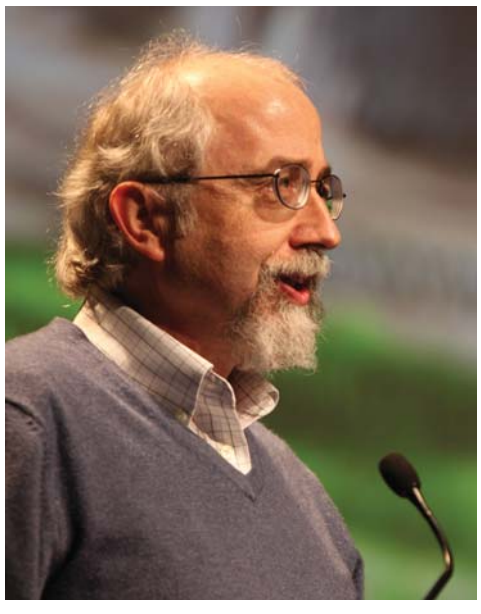
The Flooded Gum is one of biggest flowering plants in the world, growing up to 85 metres tall, yet it has a relatively small genome of about 600 million letters of code – about one fifth the length of the human genome.

"This mapping is the first step to understanding the variety seen in Eucalyptus, allowing us to select the optimum trees for future environments," Professor Foley said.

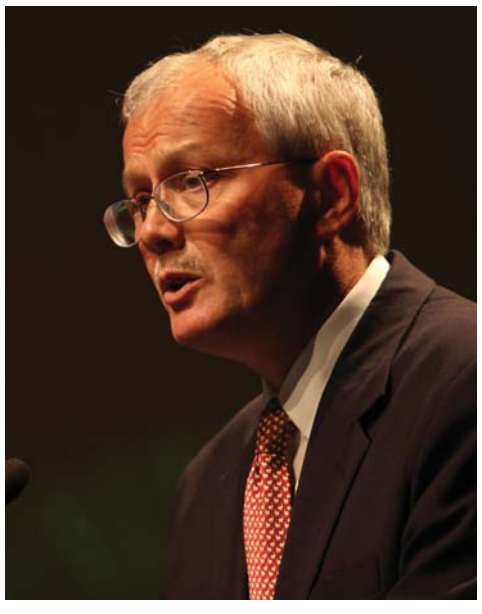
"Decoding the genome of one of Australia's grandest trees is a gift to researchers and conservationists. It is fitting that its secrets should be unlocked in the International Year of the Forests." Professor Foley concluded.

Botany: an energetic and innovative field of science

Gerard Oostermeijer

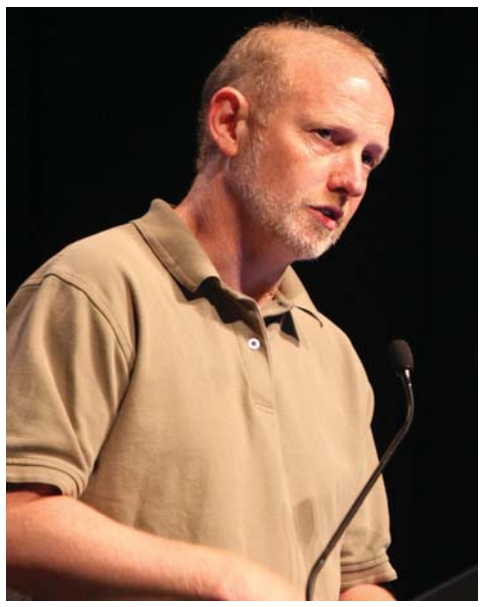


Przemyslaw Prusinkiewicz



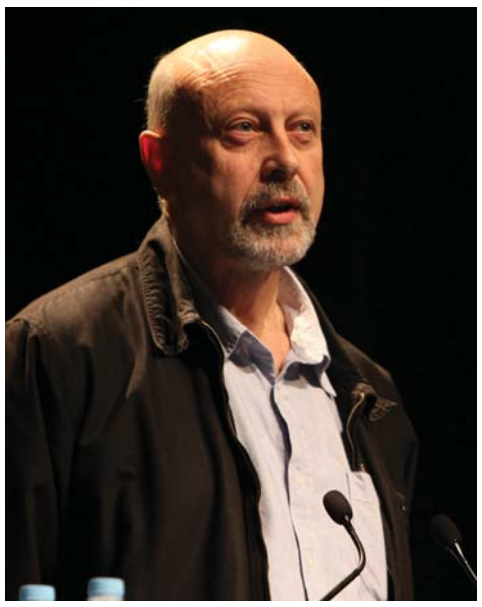
Peter Crane

Frederic Berger



Rob Martienssen

Olivier Voinnet



David Coates

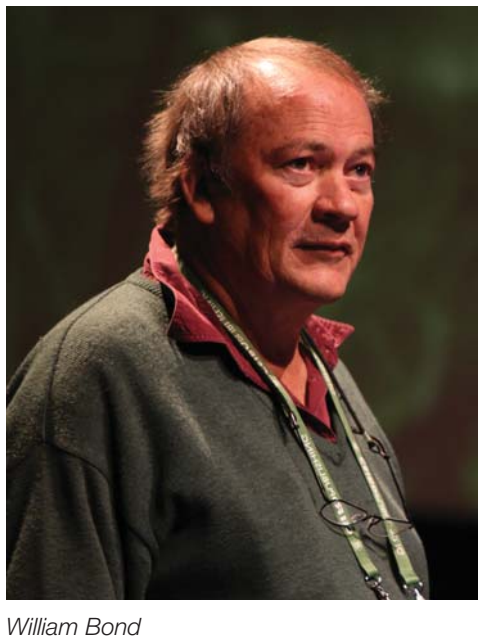
Eimear Nic Lughadha

Tetsuya Higashiyama

Zander Myburg

Thomas Dresselhaus

Guy Midgley



William Bond

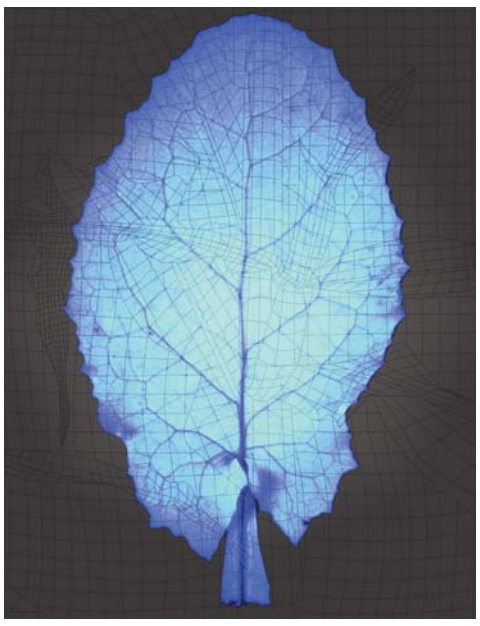
Noni Franklin-Tong

Wendy Foden

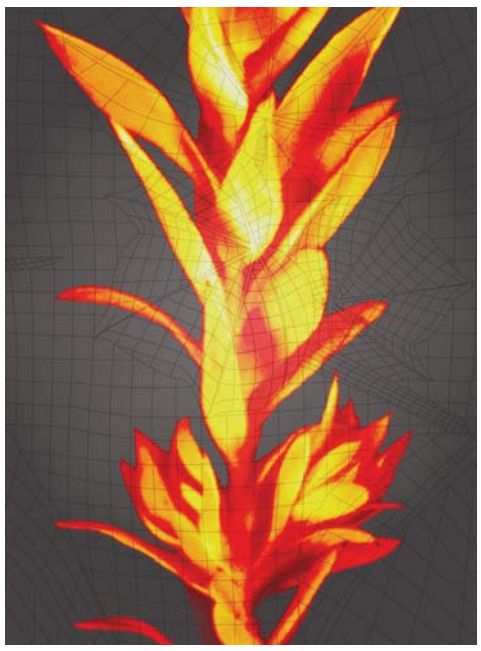
Mohan Singh

New technologies on show at IBC2011

The new rules on electronic publication of new species proposals are just one example of how taxonomy and plant science are embracing the technologies of the 21st century. Several exhibitors at IBC 2011 are showcasing innovative new tools and new ways of sharing and advancing knowledge:



The **Australian Plant Phenomics Centre** (Booth 19) is the first service of its kind in the world: A centrally funded and publically accessible facility for automated, non-destructive characterisation of plant phenotypes.



The Centre has two nodes: The High Resolution Plant Phenomics Centre in Canberra was established in 2009, while the Plant Accelerator in Adelaide opened in January 2010. At the latter node, conveyor belts pass up to 2,400 plants through a series of five imaging chambers, which analyse leaf number and colour (using visible light), senescence (using fluorescence imaging), soil and leaf water content (based on near infrared radiation) and leaf temperature (far infrared). Between them these chambers generate up to a terabyte of information per day, opening up new high-throughput approaches for studying how plants' genes affect their physical characteristics.

Wondering where to publish your data? **Thomson Reuters** uses journal impact factor (JIF) to rank academic journals, based on how often papers in those journals are cited in later work. Visit Booth 20 to check out the top ten journals in plant sciences and mycology, and see how their rankings have changed year on year.

Identify Life is an entirely new way of doing taxonomy: A collaborative online space for scientists around the world to create, share and compare 'keys' for classifying species of all kinds. In the last few years, notes director Kevin Thiele, scientists have come around to a "collaborate or perish" model, which he hopes will dissolve "islands of knowledge" (on which taxonomists in discreet fields have previously kept themselves to themselves) into a "sea of knowledge". Join the Atlas of Living Australia at Booth 27 on Thursday, just after lunch (1pm), for the official launch of this groundbreaking new resource.

CID Bio-Science has travelled all the way from Washington State USA to show its wares to the world's leading botany researchers. The company specialises in portable instruments for

making detailed measurements in the field. On display at Booth 10 are two laser devices for measuring leaf area (off and on the plant), a spectrometer for assessing how leaves absorb light, a photosynthesis analysis system, an underground scanner for imaging root systems and a 180° canopy analysis camera. If James Bond was a botanist (he was actually named for an ornithologist), he'd be carrying this kind of gear.

MaizeCyc version 2.0 released

We are pleased to announce the release of the MaizeCyc database version 2.0 (official release). MaizeCyc is accessible from the following mirror sites:

Gramene: http://www.gramene.org/pathway/maizecyc.html

MaizeGDB: http://maizecyc.maizegdb.org

Developed by personnel at the comparative genomics database Gramene (http://www.gramene.org) and the maize model organism database MaizeGDB (http://www.maizegdb.org) in collaboration with the Maize Genome Sequencing Project (MGSC www.maizesequence.org), MaizeCyc is a catalog of known and/or predicted biochemical/metabolic and cellular transport pathways from maize (Zea mays ssp. mays). Pathways and genes presented in this catalog are based on the electronic and manual annotations of the B73 RefGen_v2 gene models. It includes various sequence-based associations provided by Gramene, MaizeSequence.org, and MaizeGDB to external database entries from EntrezGene, UniProt-SwissProt and GenBank. In this round, manual annotations of genes include mapping of classical phenotype genes to sequenced genomic loci provided by Schnable and Freeling (http://synteny.cnr.berkeley.edu/wiki/index.php/Classical_Maize_Genes), and proteomics-supported gene annotations from Friso et al (2010; http://www.ncbi.nlm.nih.gov/pubmed?term=20089766). The metabolic network catalog is important to plant breeders for finding genes and their biochemical functions that underlie the genomic regions regulating important agronomic traits such as yield, plant stature, tolerance to abiotic stress and resistance to diseases and pathogens. Since corn is one of the most widely studied agronomic crops, having this network is important for academic and industry researchers who want to explore homolgs of corn genes in crops like wheat and biofuel feedstock grass crops such as sugarcane, sorghum, and Miscanthus, in order to understand their function and exploit their association to agronoimc traits.

We welcome feedback from the research community to help us build a good quality network. You can reach us by sending a message to MaizeCyc curators through the MaizeCyc sites.

MaizeCyc is based upon the BioCyc software. To learn how to use MaizeCyc, you can use the tutorials at BioCyc or the video tutorial developed for Gramene Pathways.

This work is supported by the NSF Plant Genome Research Resource grant award #0703908 (Gramene: A Platform for Comparative Plant Genomics) and the USDA-ARS (The Maize Genetics and Genomics Database) from the USA, and numerous researchers from around the world in the form of their published results on biochemistry, genetics, genomics and evolution of maize and closely related crop plants like rice, wheat, oat, barley and sorghum. The database was created using the Pathway Tools PathoLogic module developed by Peter D. Karp and coworkers at the Bioinformatics Research Group at SRI International.

The Plant Ontology Consortium

The Plant Ontology Consortium provides a common vocabulary for all plant scientists

In order to collaborate and make progress in plant science, researchers from plant taxonomy, genetics, genomics, ecology, paleobotany and agriculture need a common vocabulary for describing plant anatomy and morphology. The latest release of the Plant Ontology (http://plantontology.org) provides such a vocabulary, with standardized names, definitions and relationships among terms that can be used to describe any plant species. The extensive use of synonyms allows comparisons among disparate research communities, so that a computer can us the Plant Ontology to understand that ear, spike, panicle and corymb all refer to an inflorescence. Likewise, if one asks a computer to search for all of the genes expressed in a plant leaf, it can use the relations in the Plant Ontology to figure out that genes expressed in a petiole or a lamina should be included in the search results. Plant Ontology terms can be integrated into curation and annotation tools in a way that allows botanists, breeders and genomicists to standardize their descriptions but does not inhibit the use of more traditional free text descriptions. The recent addition of Spanish and Japanese synonyms in the Plant Ontology opens up its use to researchers working in other languages. The Plant Ontology is seeking input form the plant science community to provide enrichment of terms used by different taxanomic communities.

The Plant Ontology is hosting IBC symposium 048 Bio-ontologies for Plant Science (Thursday at 1:30PM).

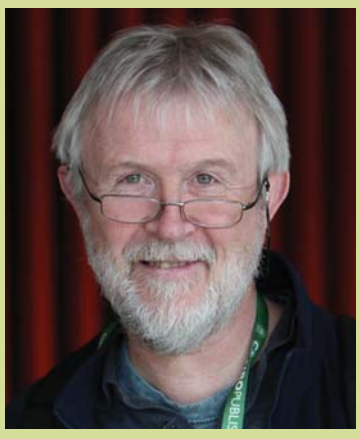
Faces and voices from around the world

PhD student **Pijush Kanti Das** says he is proud to be at IBC 2011 presenting his research. Pijush is studying at Vidyasagar University, India, researching the traditional dye-yielding plants of West Bengal. As local people switch to synthetic dyes, Pijush is part of an effort to capture knowledge of dye-yielding plants before it is lost.

Amy McPherson is managing editor of the American Journal of Botany, and says IBC is a great place to keep up with what's going on in the field. She's also taking the opportunity to meet up with journal authors, editors and reviewers. And enjoying her first visit to Australia.

"I'm not actually a botanist," confesses **Kristen Pascoe** from her exhibitor's stand. Kristen is events and liaison officer for the Faculty of Science, Technology and Engineering at Melbourne's La Trobe University, which next year will open its new Centre of AgriBioscience. "I've met prospective students, researchers from Russia to Mexico – it's been great to talk to people with such a variety of interests," she says.

IBC 2011 is **Birgit Gemeinholzer**'s second International Botany Congress – she also attended the 2005 meeting in Vienna. The Melbourne meeting is a lot easier to get around, she says. Birgit is presenting her own work on Friday, and says she has enjoyed hearing so much about molecular population genetics. "It's a new area, and it's very interesting," she says. Birgit works at the University of Giessen in Germany.



Kurt Weising, a Professor at the University of Kassel in Germany, is giving an oral presentation on Friday, but also has three e-posters at the Congress. He particularly likes that the e-posters will be available online to delegates for the next 12 months. "At a conference you are always in a hurry – this way you can go through them systematically," he says. He misses some aspects of presenting a traditional printed poster, though. "It's good for students to stand by their posters and get to talk to other professors about their work," he says.

Getting to present his work in an oral presentation has been one of the highlights of the conference for **Bort (Robert) Edwards**, a PhD student at the University of Queensland in Australia. "I had some good feedback after the talk, quite a few people came up to talk to me about it afterwards," he says. Edwards is close to the end of his PhD, and has been making some good contacts as he thinks about posdoc positions.

Scientist **Joshua Klein** is visiting Melbourne from Israel, where he works at the Ministry of Agriculture's Volcani research centre. "It's equivalent to CSIRO in Australia," he says. Joshua has spent time in Australia before, having spent a sabbatical working at CSIRO in Canberra three years ago. "I'm most interested in drought resistance and tolerance," he says – an area in which Australia has some expertise.

Australia isn't new to **Catherine Rameau** – she has an ongoing research collaboration with Christine Beveridge at the University of Queensland. At IBC2011, Catherine is presenting some of her work on plant development and hormone control of branching. But she's also enjoying some talks outside of her own area of research. "I'm looking forward to hearing Peter Crane, I'm not an evolutionary biologist but I'm interested in that," she says.

IBC2011 is **Molotja Georginah**'s first international conference. She's a lecturer in biology at the University of Venda in South Africa, and she's here presenting an e-poster on some of her biodiversity research. "I've met with many people from Africa," she says. But the conference has also been a great forum for meeting editors from the many journals exhibiting at the meeting to discuss publishing her work, she adds.

Janelle Hatherly is Manager Public Programs at the Royal Botanic Gardens and Domain Trust in Sydney. She is visiting the Congress because the Trust supported and organised Wednesday's public debate, which was entitled Brave New World: can we solve tomorrow's environmental and energy problems by using life itself? "It's a great opportunity for the Botanic Gardens to engage the public with plants," she says.

Jamie Butlin has picked a pretty big international meeting for his first scientific conference. Jamie is about to start a PhD at CSIRO Plant Industries in Canberra, having recently finished Honours in Chemistry at the Australian National University. He says that he has particularly enjoyed the sessions on C4 photosynthesis, especially the potential applications that it has.

A plant molecular biologist at the University of Melbourne, **Monika Doblin** hasn't had to travel far to attend IBC 2011. Monika says she has enjoyed the diversity of topics being presented at the meeting, particularly all the work on biofuels, which is an area that her own work in plant cell wall biosynthesis is moving towards.

Brave New World: Plants and Microbes Solving Problems

From the food we eat to the energy we consume, plants have traditionally fulfilled our needs. But can they be relied upon to sustainably keep the growing global population warm and well fed? Or are we about to enter the era of the microbe?

These are the issues Robyn Williams tackled on Wednesday in a public discussion entitled *Brave New World: can we solve tomorrow's environmental and energy problems by using life itself?*, organised by the Royal Botanic Gardens and Domain Trust, Sydney.

"Plants feed us and nature sustains us, but could microorganisms give us a bigger bang for our buck?" asked ABC science broadcaster, Robyn Williams, who is moderating the debate.

Championing the world of plants were Professor David Mabberley, currently at Royal Botanic Gardens, Kew, UK but soon to be Executive Director of Sydney's Royal Botanic Gardens Trust; and Dr Kevin Thiele, Curator of the Western Australia Herbarium.

Speaking for the microbes were Dr Jeff Powell, Microbial ecologist and lecturer, University of Western Sydney; and Associate Professor Kirsten Heimann, cell biologist and algal biofuels expert at James Cook University.

"Imagine two planets, one covered with flowers, forests and grasslands, and the other covered with microbes," said Thiele. "Which would you rather visit?" That's the power of plants, he says – they engage people with the natural world, and can help to build the political consensus that will be needed for society to achieve sustainability.

But microbes could be ideally suited to cleaning up our increasingly polluted planet, countered Powell and Heimann. "Algae evolved in an era when atmospheric CO_2 levels were naturally high," said Heimann. "They thrive under these conditions, which makes them perfect for cleaning up the waste that we're creating."

Despite their differing research backgrounds, the speakers ultimately agreed on many more points than they disagreed. The mightiest tree relies on the microbes that surround it – and it is that kind of symbiotic, sustainable relationship that we should be striving to establish with the natural world.

Jeff Powell

Robyn Williams

David Mabberley

Kevin Thiele

Kirsten Heimann

Ultimately, the speakers agreed, what is needed is a shift in education, to re-engage people with the natural world and to equip them to make rational and informed choices. "Botanical gardens make a great place for that, for the general public to engage with science," said Janelle Hatherly, Public Programs Manager of the Royal Botanic Gardens and Domain Trust, Sydney, as she drew the debate to a close.

Posters on parade

Session 3 (RF03):

Bruna Arenque, University of São Paulo, Brazil

Carbohydrate metabolism of the Amazonian tree Senna reticulata *under elevated CO_2*

Plants living on floodplains use many strategies, both morphological and physiological, to improve their chances of surviving a regular soaking. In species such as *Senna reticulate*, these strategies include managing their carbohydrate metabolism, which we assessed under elevated levels of CO_2.

Marta Gorecki, University of Western Australia, Crawley, Australia

Tough love: how drought in the maternal environment affects seed dormancy

When times are tough, seeds often delay their germination, waiting until conditions for seedling survival are better. Little is understood about the factors that control seed dormancy, and how it might be affected by climate change. We have explored the relative effects that maternal environment and genetics have in determining seed dormancy characteristics.

Marie Hermant, UMR CNRS ECOBIO, Rennes, France

Phenotypic integration and endemism level of fourteen plant species in the Sub-Antarctic Kerguelen Islands

The sub-Antarctic region contains both many endemic species and a strong gradient of habitats – making it an ideal location for studying the ecological and biological factors that may be involved in species geographical restrictions.

Kathryn Hill, University of Adelaide, Australia

Responses of stomatal size and density to increasing CO_2 vary within the southern Australian Myrtaceae

Increasing concentrations of CO2 in the atmosphere are suspected to have opposite effects on stomatal density and size, decreasing the former and increasing the latter. We have investigated the effects of recent rapid increases in atmospheric CO_2 concentrations on the stomata of four Myrtaceous species, and its impact on plant water use.

Tara Konarzewski, CSIRO and University of Technology Sydney, Australia

The Capacity of Echium plantagineum *(Paterson's Curse) to Evolve and Respond to Predicted Drought Conditions*

Paterson's Curse (*Echium plantagineum*) is an exotic weed, outbreaks of which can occur across much of Australia, degrading land and poisoning livestock. The key objective of our research is to experimentally determine its drought tolerance, and to link these data with the evolutionary potential of *E. plantagineum* to adapt to predicted climate changes.

Ekaterina Luginina, Russian Research Institute of Game Management and Fur Farming, Russia

Biological and Ecological Peculiarities of Heracleum sosnowskyi Distribution in Russia

Invasive species can be a threat to biodiversity and to the economy. As trade and transport develops, and humans become ever more mobile, the threat of spreading alien species grows. To monitor and control their spread, we need to study the biological and ecological peculiarities of invasive species.

Sayaka Nakagawa, University of Tokyo, Japan

Variation of floral morphology in Aster hispidus var. tubulosus (Asteraceae): correlation between frequency of floral types and microhabitat

Variation in the morphology of flowers has been linked to plant speciation, and so the origin of flower shape and its maintenance mechanism is likely to be important for diversification of plants. We assessed this idea using members of the Asteraceae family, which show extreme variety within a population.

Ivan Nery Cardoso, University of São Paulo, Brazil

Implications of clonal integration on water use of Hydrocotyle bonariensis subjected to contrasting water conditions in a coastal dune of Ubatuba, São Paulo, Brazil

Sandy soils in coastal dunes offer a challenging habitat for plants, due to the low nutrient availability, water scarcity and high salinity. Such habitats are dominated by plants with stoloniferous growth, which may allow the transfer of resources among ramets from favourable to unfavourable sites.

Riksfardini Ermawar, University of Adelaide, Australia

Distribution, properties and synthesis of (1,3;1,4)-ß-glucan in Sorghum bicolor *(L.) Moench*

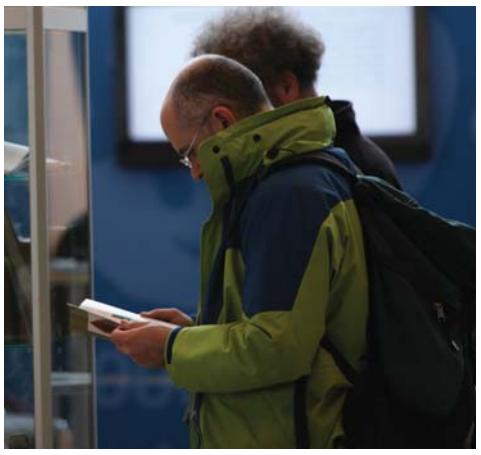
We have examined the amounts of (1,3; 1,4)-ß-D-glucans in five varieties of Sorghum grain and vegetative tissues using a modified Megazyme assay. In grain, the amount was low while in the vegetative tissues it was found to vary and was significantly influenced by the age of the tissue.

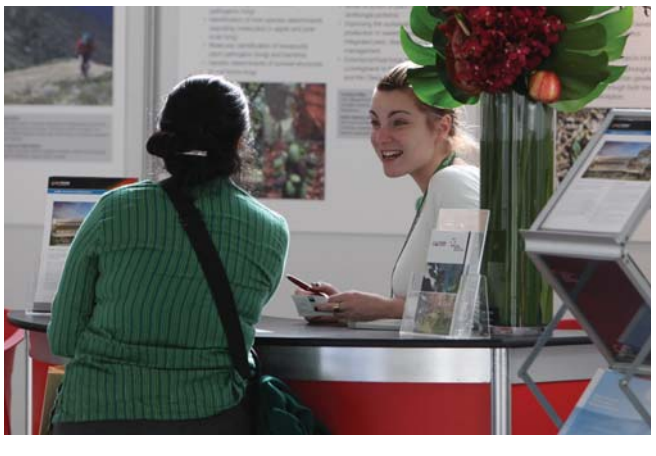
Melanie Hand, La Trobe University, Bundoora, Australia

*Analysis of population structure and genetic diversity within a global collection of tall fescue (*Festuca arundinacea *Schreb.)*

The Festuca genus contains over 500 species of temperate grasses, the most agriculturally important of which is Tall Fescue. Comparison of gene sequences has revealed that the Continental and Mediterranean types are likely to have arisen independently following hybridization of different progenitor taxa.

Pictures at an Exhibition





Draft Resolutions

Draft resolutions should be given to the Registration Desk by midday Friday, or may be submitted in electronic form to congressresolutions@icmsaust.com.au

Resolutions may be submitted for consideration by the Resolutions Committee by

a) Any official meeting of the Congress (All-Congress event, society meeting, symposium, workshop, etc.), provided that the resolution is supported by the group, submitted in writing, and signed by the chair, with date, time, and place of the meeting, or

b) Any group of 25 or more duly registered members of the Congress, provided that the resolution made in writing, is sighted by at least 25 members.

Also, at the Closing Plenary session of the Congress, any registered delegate may propose a resolution from the floor, provided that it is seconded and approved by the assembly.

As the Digital Posters are extremely popular, please respect the signs and don't access the internet. Thank you.

Closing Ceremony

Plenary Hall 3 11-00am to 12-30pm Saturday 30 July 2011.

- **Presentation of and voting on IBC resolutions**
- **Presentation of the Engler Gold Medal of the International Association for Plant Taxonomy**
- **Acknowledgements**
- **Vote of thanks on behalf of the delegates**
- **Presentation by the host of the next International Botanical Congress**
- **Closing speech by President of XVIII International Botanical Congress**

PLANTS AND PEOPLE

Free public evening lectures and a lunchtime panel discussion as part of the XVIII International Botanical Congress. Come and listen to experts on these subjects, and ask them questions afterwards

- **What do plants do for us? What can we do for plants?**
- **What will climate change do to our favourite wine-growing areas?**
- **How important are plants and microbes to us?**
- **How can we conserve and use them sustainably?**
- **Sister Waterlily meets Big Bad Banksia Man: the role of plants in children's stories and teaching children about the natural world**
- ***Atlas of Living Australia* – an online encyclopedia of all living things in Australia**

Venue: Plenary Hall, Melbourne Convention and Exhibition Centre, Southbank, Melbourne

25 July 1830–2000 *Fruits of the vine – future climates and wines* Prof. Snow Barlow

26 July 1830–2000 *The world of plants* Prof. Peter Raven

27 July 1230–1330 *Brave New World: can we solve tomorrow's environmental and energy problems by using life itself?* Panel: Assoc. Prof. Kirsten Heimann, Prof. David Mabberley, Dr Jeff Powell, Dr Kevin Thiele; moderator Robyn Williams

28 July 1830–2000 *Sister Water Lily meets the Big Bad Banksia Man* Prof. Peter Bernhardt

29 July 1830–2000 *The Atlas of Living Australia* Donald Hobern

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