FESPB*alert*

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Contents:

Research news

Invariant properties in coevolutionary networks of plant-animal interactions

The interactions among animal and plant species depict the essence of natural communities: a web of relationships that build up links of mutual dependence. Just imagine all the interactions that can take place in a highly diverse tropical rainforest. Many insects, bats, and hummingbirds pollinate flowers and frugivorous vertebrates- like toucans or monkeys- disperse plant seeds; the plants in turn provide key resources for the animals in a complex web of mutually beneficial interactions. The bulk of species have few interactions but some species interact with large numbers of other species.

Scientists from Spain have recently shown in an article published in Ecology Letters that for a large number of species sampled, community organisation is always the same despite ecological differences between members of different communities. The food webs considered by these researchers are constructed in a similar way to human-made complex networks such as social networks, the internet, airport connections, etc. This reveals for the first time a generalized topology characteristic of self-organized complex systems and has important implications for the conservation of biodiversity.

Palm leaves act like flowers

Flowers of insect-pollinated plants attract visitors by visual and/or olfactory cues but sometimes, it appears, other organs may steal the scene. In an article published in the January 2003 issue of Ecology Letters, scientists from the Centre National de Recherche Scientifique have found that the European dwarf palm, which grows on the Mediterranean coasts, attracts its specialised pollinating weevil in a very surprising way. In this palm, flowers produce no odour and are not visually distinguishable at long distance. However, during the flowering season, the palm"s leaves produce a specific fragrance, with typical floral notes. The researchers showed that only the odour emitted by the leaves was attractive to the pollinating weevil. The function of attracting pollinators has thus been transferred from flowers to leaves. Asking why some plants vegetative organs "nose around" in floral business opens new questions about the evolution of pollination systems.

Lorenzo's oil works for plants too

Scientists at Long Ashton Research Station have identified a gene with a pivotal role in regulating seed germination. According to an article published in the January issue of BBSRC business, the *Arabidopsis* COMATOSE (CTS) gene, is vital for breaking seed dormancy. It is also analogous to the human X-ALD gene, which featured in the 1992 film "Lorenzo's oil". Treatment of cts mutants with a plant version of Lorenzo's oil cures their inability to germinate.

The researchers were investigating the genetic control of germination, a key transition in the life of a plant. Once they had cloned the CTS gene, they realised that is analogous to the human adrenoleukodystrophy (ALD) gene, mutation of which results in the build-up of very long chain fatty acids (VLCFAs) and ALD disease. Like human ALD sufferers, cts mutant seeds suffer from a variety of effects including inappropriate accumulation of VLCFAs. They are also unable to germinate. Lorenzo’s oil was developed by Augusto Odone for his son, who is an ALD sufferer, and was recently proven effective for the treatment of pre-symptomatic ALD patients. "We wondered whether Lorenzo's oil would work for plants too" says team leader, Dr Mike Holdsworth. Sure enough, when he treated cts mutant seeds with a similar mixture of oils, the seeds became able to germinate.

The Long Ashton researchers, in collaboration with Dr Alison Baker (University of Leeds) and Professor Ian Graham (University of York),.believe that CTS protein is important as a fatty acid transporter, but may also have a key role as a regulator of germination. They are continuing to investigate CTS in *Arabidopsis*, but are also interested in crops such as wheat and oilseed rape, where dormancy levels are associated with quality and performance.

Arabidopsis Knockout Facility

The Arabidopsis Knockout Facility is an advanced research facility that is crucial to the plant genomics effort. The task is simple in theory: simply insert T-DNA markers randomly into every gene in the Arabidopsis genome at a rate of one per plant and then store the viable seed. When a researcher needs a plant with a specific gene "knocked out", the library is screened and the new line is established for study, typically at the researchers home laboratory. The Knockout Facility is located at the University of Wisconsin, Department of Biochemistry, where it serves as an international resource.
http://www.biotech.wisc.edu/Arabidopsis/

Genetically modified crops offer hope for endangered wildlife

In the first piece of research into how genetically modified (GM) herbicide tolerant crops could be used to benefit the environment, scientists* from Broom's Barn Research Station in Suffolk show that creative use of GM crops could bring back increasing numbers of endangered wildlife and birds such as skylarks and finches. This new research, to be published in Philosophical Transactions B, a learned journal produced by the Royal Society, suggests that GM herbicide tolerant crops could be a powerful tool in developing sustainable farming systems in the future.

The research is based on a new weed-management system for GM sugar beet, demonstrating that weeds can be retained for longer without affecting the crop yield. The weeds and associated insects provide vital food and habitats for the farmland birds and other wildlife, which have dramatically declined as a result of intensive farming systems.

Broom's Barn Research Station director, Dr John Pidgeon, says: "Frequent spraying destroys the weeds on which the insects and birds feed, but our system means we can reduce the amount of spraying and allow weeds between the rows to flourish in summer without affecting yield. Our method could easily be applied to other row crops.

"We are excited about our results because this is the first time research has shown that GM herbicide tolerant crops can be managed for environmental benefit. This marks a vital contribution to the GM debate, which until now, has been largely focused on fears of possible negative impact. The environmental benefits are particularly important for the UK and the rest of Europe, where around 80 per cent of the land is farmed," he says.

Other news

The Public Perception of Science in Portugal

In a research on the public's perception of science in present Portuguese society, recently published by Gradiva, three sociologists at the Centre for Research and Studies in Sociology achieved results that allowed them to identify a typology of the main ways the Portuguese relate with science.

António Firmino da Costa, Patrícia Ávila and Sandra Mateus, obtained the data through an extensive survey using a questionnaire, applied to a representative sample of the Portuguese population resident in Continental Portugal and aged between 15 and 74 years. The respondents are characterized, amongst other things, by the practice of the acquisition of scientific knowledge, by the use of science in various social contexts, by the self-evaluation of scientific knowledge and by the willingness to acquire/improve it, and by their position regarding aspects to take into account in the desirable profile of scientific magazines.

The study revealed seven profile-types. Four of these types, which cover about a third of the population under consideration have high or significant levels of closeness to science These profiles are " Commited", "Insiders", "Beginners" and "Self-taught". The "Commited" are a very small minority - little more than 2%, professionals and high-level students - who have various and intensive ways of acquiring scientific information; the "Insiders" are more numerous - around 9% - generally highly educated, middle-age professionals, who also obtain scientific information on a regular basis, and who use science in their professional sphere and personal lives; they see their knowledge as reasonably good. The "Beginners" constitute about 8%, are younger, and relate to science mainly at school. The "Self-taught" (almost 18%) come from a broad age and education range; they acquire information in the same intermediate level as the "Commited"; they put their knowledge at a lower level than the previous profiles and demonstrate a disposition to improve this knowledge.

The other three types include almost two thirds of the population studied and their ways of relating to science are designated as "Indifferent", "Benevolent" and "Withdrawn". Generally they have low levels of education, and are employed in the service sector. The "Indifferent" (almost 23%) acquire information in a residual way; the only area where they use it is in their personal life, but at very reduced levels. They are more pessimistic about the consequences of the developments of science than the previous types. The "Benevolent" are the largest category – almost 28% - and are very similar to the previous group in many aspects, although they have a favourable attitude towards the consequences of science. The "Withdrawn" (around 12%) have no contact with science (neither do they obtain nor use information), they see their level of knowledge as very low and have less desire to improve. They hold the most negative opinions about developments in science. They also constitute the oldest, the least educated and the group with the greatest weighting of workers and housewives.

Book reference: Costa, António Firmino da; Patrícia Ávila; Sandra Mateus (2002), Públicos da Ciência em Portugal, Lisboa, Gradiva Editora, Colecção "Trajectos Portugueses"

European Science Foundation programme – meeting on gene flow

Will genes from genetically modified crop plants (GMPs) move into wild plants and what will be their environmental impact ? The world's leading scientists will meet at Amsterdam to address this question. At the invitation of this European Science Foundation programme some 40 leading international scientists working in the field of biosafety research will present and discuss the state of the art with respect to the possible consequences of the influx of genetic material from crops into wild relatives. The conference aims to summarize the current scientific knowledge on gene flow from GMPs and the ecological and evolutionary effects of the introgression of transgenes into wild species.

Gene flow - the escape of new attributes from crops to wild plants – is the main focus. "We know that gene flow will happen" says Dr. Hans den Nijs from the University of Amsterdam, who is one of the organizers on behalf of the ESF. "Gene flow is – after all – a basic component of evolutionary biology. We must learn to address the consequences of gene flow".

This conference is one of a series of meetings organised by the Assessment of the Impact of GM Plants (AIGM) programme of the European Science Foundation . Dr Jeremy Sweet (NIAB, Cambridge, UK), coordinator of the programme said " This programme has successfully brought together a very diverse range of scientists throughout Europe to study the Agronomic and Environmental Impact of GMOs. "

More detailed information is available in the web
http://www.science.uva.nl/research/ibed/Introgression/
or visit the ESF AIGM web site: http://www.esf.org/aigm

Also see meetings details

Positions available

Full details of these positions are posted on the FESPP website on the Jobs and Studentships pages (http://www.fespp.org/jobs.asp**)**

Fructan Metabolism, And Fruit Quality, Danish Institute Of Agricultural Sciences, Denmark

2 PhD studentships

Two PhD fellowships are available within the research group of Crop Ecology and Product Quality at the Department of Plant Biology:at the (DIAS), Department of Plant Biology, Research Centre Flakkebjerg, DK-4200 Slagelse, Denmark

1) Fructan metabolism in temperate grass species
This project will focus temperate grass species with respect to biochemical and agronomic factors affecting carbohydrate metabolism, in particular fructans. There is an increasing interest in these compounds in terms of their agricultural potential, and thus it is important to elucidate also environment x agronomy interactions in relation to carbohydrate metabolism. The research group is focusing on the development of rapid-analytical methods for quality parameters and it is expected that the study will include development of reliable calibrations for the analysis of fructans using NIR (Near Infra-red Reflectance) techniques.
Applicants with experience in crop physiology and biochemistry are preferred.

For further information, please contact Dr Birte Boelt, Head of Research Unit, Dept. of Plant Biology, Research Centre Flakkebjerg, DK-4200 Slagelse, Denmark. Tel.: +45 5811 3425; Email: Birte.Boelt@agrsci.dk.

2) Crop quality: nutritional and environmental constraints
This project will focus on elucidating nutritional and environmental constraints on quality parameters, in particular of carbohydrates and antioxidants in barley. Methodology will include near infra-red reflectance (NIR) and -transmission (NIT) spectroscopy for grain composition, as well as photosynthesis measurements, HPLC analyses of phenolics, and biochemical and EPR measurements for determination of antioxidant capacity and levels of free radicals.
You should have a background in crop physiology and biochemistry, including experience of HPLC measurements, and be able to work independently and creatively.

Further information can be obtained from Dr Bernd Wollenweber, Dept. of Plant Biology, Research Centre Flakkebjerg, DK-4200 Slagelse, Denmark.
Tel. +45 5811 3373; Email: Bernd.Wollenweber@agrsci.dk.
Detailed background information for both positions is available at:
http://www.agrsci.dk/pbi/afde/nyt.shtml.

Applications (4 copies including CV and references) should be sent to: The Danish Institute of Agricultural Sciences, Management Secretariat, Research Centre Foulum, PO Box 50, DK-8830 Tjele, Denmark.

Plant-Environment Interactions, Newcastle, U.K.

EU Marie Curie PhD Fellowships Well-funded Training Opportunities for European (non-UK registered) PhD Students

High quality Marie Curie PhD Training Fellowships are available in the Biology School at Newcastle University in the area of Plant-Environment Interactions – an area in which the School has internationally-recognized expertise (see http://www.ncl.ac.uk/biol/). Training is available within three principal areas: environmental and molecular plant physiology (Dr. Jeremy Barnes & Dr Anne Borland); microbial ecology (Professor Tony O'Donnell & Dr. Ian Singleton) and plant-insect interactions (Dr. Gordon Port & Dr. Angharad Gatehouse). Emphasis will be placed on developing generic skills (e.g. languages, oral and written presentation, e-science skills) as well as specialist skills, with each 'training package' tailored to meet the specific needs of individual applicants, though some potential projects are listed below. In addition to the excellent research facilities that will be at the disposal of Fellows, trainees will be have the option of taking advanced taught courses related to their postgraduate research programme as well as a range of courses aimed at furthering the Fellows' professional development. Fellowships, upto 12 months duration, are available from January, 2002 (until the end of 2005). Applicants should possess a good quality degree in an appropriate biological subject and be registered for a PhD at an institution outside the UK. Every selected Fellow will be generously supported (stipend = 1200 euro per month [tax free] plus 100 euros per month toward travel to and from home country, with additional financial bursary to cover all other costs (e.g. research consumables, fees, etc.). Selection of Fellows will take place at 3-monthly intervals. Selected Fellows must take-up their appointments within 6-months of selection. If you wish to apply, please contact: Jeremy Barnes or Anne Borland, Dept. of Biology, University of Newcastle Upon Tyne, NE1 7RU, UK (tel. +44(0)191 222 7374 or +44(0)191 222 5959; or email: J.D.Barnes@ncl.ac.uk or A.M.Borland@ncl.ac.uk). Applications should comprise two-page curriculum vitae, names and addresses of two academic referees and a brief statement about the nature and key findings of the candidate's PhD studies.

Potential projects include:

Establishing QTLs for the effects of ozone on wheat yield. Supervisors: Dr. Jeremy Barnes, Prof. S. Quarrie and Dr. Anne Borland

The circadian control of starch degradation *in planta*. Supervisors: Dr. Anne Borland and Dr. Jeremy Barnes

Establishing the function of Heme Activated Protein (*HAP5c*) in the repair and detoxification of oxidative stress. Supervisors: Dr. Jeremy Barnes and Dr. Anne Borland

Employing novel ascorbate oxidase transformants to probe the role of the leaf apoplast in signalling transduction. Supervisors: Dr. Jeremy Barnes & Dr. Anne Borland

Probing the role of cell wall constituents in ozone detoxification Supervisors: Dr. Jeremy Barnes and Dr. Anne Borland

Establishing the significance of ozone uptake and detoxification at night. Supervisors: Dr. Jeremy Barnes and Dr. Anne Borland

Shifts in rhizosphere microbial community induced by atmospheric pollution. Supervisors: Prof. Tony O'Donnell and Dr. Jeremy Barnes

Exploring the use of ozone for contaminated soil remediation. Supervisors: Dr. Ian Singleton and Dr. Jeremy Barnes

Impacts of GM pest resistant crops on non-target organisms. Supervisors: Dr. Angharad Gatehouse and Dr. Gordon Port

Molecular basis for cross-tolerance to insect predation and oxidative stress *in planta*. Supervisors: Dr. Angharad Gatehouse, Dr. Anne Borland and Dr. Jeremy Barnes

Harnessing the use of ozone for the decontamination of freshly-harvested produce. Supervisors: Dr. Ian Singleton and Dr. Jeremy Barnes

The regulation of vacuolar sugar transporters. Supervisors: Dr. Anne Borland and Dr. Jeremy Barnes

Decontamination of minimally-processed foods using ozonated water. Dr. Ian Singleton and Dr. Jeremy Barnes

Enquiries about these EU Marie Curie Training Awards to Jeremy Barnes or Anne Borland, Dept. of Biology, University of Newcastle Upon Tyne, NE1 7RU, UK (tel. +44(0)191 222 7374 or +44(0)191 222 5959; email: J.D.Barnes@ncl.ac.uk or A.M.Borland@ncl.ac.uk). Applications should comprise two-page curriculum vitae, names and addresses of two academic referees and a brief statement about the nature and key findings of the candidate's PhD studies. Additional information can be accessed via the EU Marie Curie website by entering

'Plant-Environment' into the vacancy search tool at http://improving.cordis.lu/mc/ or going directly to http://improving.cordis.lu/mc/show-PRJ.cfm?obj_id=MCFellow0000000000003F59.

Applicants must be nationals of a Member EU State (except UK) or Associated State and Fellows will be selected on the basis of merit alone.

Novel Ion Channels In Plants (NICIP), Gif-Sur-Yvette, France

Postdoctoral position in EU - Research Training Network

Plant ion channels play important roles in physiological processes such as osmoregulation, turgor-driven movements and control of membrane potential, and thereby influence the development of higher plants, differentiation of their organs and specialisation of individual cell types. The joint project NICIP aims at improving knowledge on novel ion channels in plant cells at the molecular and protein level by using multidisciplinary approaches. It includes 6 European labs who have scheduled exchanges of fellows to provide additional training, workshops, and annual meetings : (1) Bernd Mueller-Roeber / Katrin Czempinski, Potsdam, Germany; (2) Mark Tester, Cambridge, Great Britain; (3) Hélène Barbier-Brygoo, Gif-sur-Yvette, France; (4) Hervé Sentenac / Sabine Zimmermann, Montpellier, France; (5) Enrico Martinoia, Neuchâtel, Switzerland; (6) Franco Gambale, Genova, Italy.

A postdoctoral position for a European (but not French) citizen, is available immediately and open for 3 years in the group of Hélène Barbier-Brygoo in Gif sur Yvette (25 km South West of Paris). Our group is working on the molecular mechanisms of anion transport across plant membranes. Current research is dedicated to electrophysiological characterization of plasma membrane anion channels and molecular identification of anion channel genes in *Arabidopsis thaliana*. Our group is part of the "Institut des Sciences du Végétal" belonging to the CNRS, and offers all facilities of plant molecular biology, membrane biochemistry, electrophysiology and cell biology (fluorescence and confocal microscopy).
The postdoctoral researcher will participate in the molecular and functional characterisation of genes from the *Arabidopsis* CLC (ChLoride Channel) family, including expression in heterologous systems and study of cellular and subcellular localisation of channel proteins. He(she) will also identify and analyse new insertion mutants in CLC genes with the purpose to correlate their phenotype with electrophysiological abnormalities in the anion currents measured on native plant cell membranes by the patch-clamp technique.
All motivated EU candidates with a strong background in molecular biology and/or transport physiology will be considered. Previous experience in electrophysiology or plant biology is not required as training can be provided.

Applications including CV, a description of previous research experience and names and addresses of two possible referees should be sent by Email to Hélène Barbier-Brygoo (brygoo@isv.cnrs-gif.fr).

For more information, contact:
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Forthcoming meetings

Introgression from Genetically Modified Plants (GMP) into wild relatives and its consequences

Aula, Free University Amsterdam, 21-24 January 2003

Initiated by the European Science Foundation Programme on Assessment of the Impact of Genetically Modified Plants (AIGM)

Prior to the start of the conference, there will be a PRESS CONFERENCE: TUESDAY JANUARY 21, 13.00-14.30 , AT THE MAIN BUILDING OF THE VRIJE UNIVERSITEIT, DE BOELELAAN 1105, AMSTERDAM.

During the conference several in-depth discussions will take place in special workshops. Currently, more than 200 participants from science, plant breeding, governmental regulatory institution, and policymakers, involved in this field have registered for the meeting.

This conference is one of a series of meetings organised by the Assessment of the Impact of GM Plants (AIGM) programme of the European Science Foundation . Dr Jeremy Sweet (NIAB, Cambridge, UK), coordinator of the programme said " This programme has successfully brought together a very diverse range of scientists throughout Europe to study the Agronomic and Environmental Impact of GMOs. This conference discusses the findings of separate research groups in Europe and elsewhere and also the conclusions of several workshops on this topic that have been conducted over the last four years of the programme. We are very grateful to the ESF and its member organisations for their continuing support. "

More detailed information is available in the web
http://www.science.uva.nl/research/ibed/Introgression/
or visit the ESF AIGM web site: http://www.esf.org/aigm

Optimisation of water use in the Mediterranean region.

Palma, Mallorca, 24-28 March 2003.

Information at
http://www.aab.org.uk/meetings/mtgs2003/optimise.htm

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APOPTOSIS 2003 : From signaling pathways to therapeutic tools

January 29 - February 1st, 2003

European Parliament Conference Center (Luxembourg)
http://www.transduction-meeting.lu

We are encouraging potential participants to submit papers for oral and poster presentations at this the fifth molecular and cellular biology meeting. More then 40 additional talks will be added chosen from registered participants.

Selected speakers will receive a notification early January 2003.

All abstracts will be available online prior to the meeting at
http://www.pharma-transfer.com

Our website contains additional information about Luxembourg, selected hotels, our expo and includes now a link to a secure credit card payment site.

Fifth International Workshop on Field Techniques for Environmental Physiology. The workshop will be held in Tenerife, Canary Islands, Spain, 16–22 March 2003. The principal organizer is Dr Johanna Pulli, Edinburgh University, UK. Postgraduate students are especially welcome and will be introduced to the practicalities and pitfalls of a wide array of techniques. There are grants available for postgraduate students to attend either from the British Ecological Society or from the Society for Experimental Biology (an FESPP constituent society). Early applications are encouraged. Full details are available on:
http://www.ierm.ed.ac.uk/instrument.workshop/

7th International Congress of Plant Molecular Biology

Barcelona, Spain. 16 – 21 June, 2003

http://www.ispmb2003.com

ASPB Annual Meeting

Honolulu, Hawaii. 26 – 30 July, 2003.

http://www.aspb.org

Joint meeting of the Plant Growth Regulation Society of America and the Japanese Society for Chemical Regulation of Plants

Vancouver, British Columbia Canada. August 3-7, 2003).

Sessions on: molecular aspects of plant growth regulation, fruit maturation, PGR uses in tree and woody plants, and applied PGR research.

3rd International Symposium on Dynamics of Physiological Processes in Woody Roots

Perth, Australia, 29 September-3 October 2003
Meeting web URL: http://www.botany.uwa.edu.au/woodyroots/

Sessions include:

1.Assimilate allocation and partitioning in roots
2.Root growth, development and turnover
3.Water flux
4.Nutrient uptake and utilization
5.Rhizosphere ecology/interactions
6. Root architecture

Keynote speakers:
Frederick (Rick) Meinzer (USDA-FS Corvallis, USA)
Mary Topa (Boyce Institute, USA)
Carol Peterson (Univ. Waterloo, Canada)
Christoph Leuschner (Univ of Gottingen, Germany)
Heinz Rennenberg (Uni of Freiberg, Germany)
Sally Smith (Univ of Adelaide, Australia)
Torgny Nasholm (SUA-Umea, Sweden)
Petra Marschner (Univ of Adelaide, Australia)
David Crowley (UC Riverside, USA)
Margaret McCully (CSIRO Canberra, Australia)
Günter Neumann (Univ. of Hohenheim, Germany)
Meine van Noordwijk (ICRAF, Indonesia)
Stephen Burgess (UC-Berkeley, USA)

Enquiries to: woodroot@cyllene.uwa.edu.au OR Pauline Grierson at pfgblue@cyllene.uwa.edu.au
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NEW!! Woody root meeting : http://www.botany.uwa.edu.au/woodyroots/index.html

Useful web sites

Bio-Web: Resources for Molecular and Cell Biologists
http://cellbiol.com/

The Bio-Web is a scientific news/resource site for molecular and cellular biology. With a newspaper-like appearance, the left column leads to major sections, cool sites (including powerhouse sites like Science, Nature, PubMed and others), followed by more news sources.

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US National Arboretum
http://www.usna.usda.gov/

There is a remarkable depth in coverage and content in this site, which is a virtual arboretum, presenting many educational opportunities. Operated by the USDA, this operation provides some routine "county agent"-like services to farmers, hobbyists, and those trying to grow plants. The menu of options provides a plethora of pull-down menus, where services like the zone hardiness map is displayed, sheets on disease characterization and prevention, and planned plant introductions into the U.S.

Where Food Crops Originated
http://horizon.nmsu.edu/garden/history/

This web site discusses Old and New World crops and their origins. It reflects on the botanical diversity that we gained through sharing crops. This is part of the Seeds of Change Garden site.

EPA Global Warming Site: Climate Change Education Resource Database
http://yosemite.epa.gov/oar/resources.nsf/websearch?openform

The EPA Global Warming Site presents information at educational levels beginning in elementary school, but the bulk of the links include numerous formal government research reports. The following topics are available: waste management reports, sea level rise reports, reference material (from UNFCCC, IPCC and others), position papers, outreach material, international material, greenhouse gas emissions reports, EPA conference reports and additional documents. Although there is general agreement that the earth is becoming warmer, there is no clear sense of what will happen. One idea in fact proposes that the warming may trigger a new ice age. Lots of activities and discussion topics.

FESPB News

Change of name
As you will probably have noticed, the abbreviation is now FESP**B**; at the recent congress, the executive committee agreed to a change in the name of the federation to the **Federation of European Societies of Plant Biology,** thus reflecting the wider activities of society members, and also bringing us in line with the American Society for Plant Biology.

Items for FESPB*alert*

If you have items, job opportunities or information you think FESPP members would like to see in FESPP*alert* or have any comments on content please e-mail me pjlumsden@uclan.ac.uk

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