



## New Committee Members

### Tiantian Zhang

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I am a professor in Cryobiology at the Institute of Research in the Applied Natural Sciences, University of Luton, UK. I obtained both my BSc (China) and MPhil (UK) degrees in Environmental Biology. My PhD study was on 'Investigations into cryopreservation of fish embryos' (University of Luton, UK). My research has been in the areas of cryopreservation of fish embryos, oocytes and cells. My current major grants are 'Development of technologies for cryopreservation of fish oocytes' (funded by the EU) and 'Investigation of new approaches to the cryopreservation of fish embryos' (funded by The Wellcome Trust). I have been a member of Society for Cryobiology since 1992 and a member of Society for Low Temperature Biology since 1993. I was the General Secretary (1997-1999) and the Treasurer (2001-2004) of the Society for Low Temperature Biology. I have been a member of the editorial boards of *Animal Reproduction Science* (present) and *Cryo-Letters* (2000-2003). I am also a referee of numerous specialist journals including *Biology of Reproduction*, *Cryobiology*, *Theriogenology*, *Journal of Zoology*, *Aquaculture* and *Aquaculture Research*. At present I am the Course Director of the MSc Cryobiology course at University of Luton.

### John Day

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I am Curator of the freshwater algal (including cyanobacteria) and protozoan subsections of the Culture Collection of Algae and Protozoa (CCAP) at the Scottish Association for marine Science (SAMS) near Oban in Scotland. I was the Coordinator and Work Package (WP) leader of the recently completed COBRA Project [www.cobra.ac.uk](http://www.cobra.ac.uk), which focused on cryobiology and cryopreservation of microalgae and cyanobacteria. In addition, I am a reviewing editor for *In Vitro Cellular Developmental Biology* and am on the editorial board of *CryoLetters*. I previously served on the SLTB Committee from 1999-2002 and acted as General Secretary from 2000-2002.

I first became interested in cryobiology in the late 1980s when working with John Morris & Brian Grout at Cell Systems Ltd, Cambridge. In December 1990 I took on the role of Curator of CCAP at Windermere and became responsible for cryobanking activities of this collection. Subsequently, I became actively involved in cryobiological research and this has included close collaborations with Erica Benson's group at Abertay. I continue these roles since the freshwater section of CCAP relocated to SAMS in 2004. I have wide ranging interests including: Biological Resource Centres (BRC), cryopreservation, cryoinjury, algal stress physiology, algal biotechnology, application of molecular method in culture collections and bioinformatics.

### Ryan Cripps

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I first dabbled with low temperature biology as a tool to maintain enzyme, carbohydrate and plant growth regulator activity/levels in plant tissue until analysis. Subsequently my direction has changed a little ... and now I am using low temperatures as a method to store vegetative tissue for the long-term conservation of rare and endangered plants. This research at the Royal Botanic Garden, Kew ([www.kew.org](http://www.kew.org)) is complementary to the work done at the Millennium Seed Bank. Thus, my primary focus is on plants that cannot be stored by conventional seed storage. My initial work was on developing a protocol for fern gametophyte cryopreservation. From there I have worked on numerous species from several different plant groups, including woody plants, herbaceous plants, carnivorous plants, selaginellas, orchids, ferns and mosses. I am currently working on a number of plants from Great Britain, Seychelles, Madagascar, St Helena and Australia.

### Andy Wetten

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I am interested in cryopreservation as a tool for long-term conservation of plant germplasm and the fundamental cellular changes that limit the success of such procedures. Clonally propagated species and those bearing recalcitrant seeds are

being investigated, with particular reference to rare and endangered forms (1). TEM studies of shoot tips conducted with collaborators at RBG Kew have revealed the nature of subcellular changes during encapsulation/dehydration-mediated cryopreservation and indicated that survival of only limited regions of the meristem are necessary to allow recovery of these propagules. Through X-ray diffraction analysis of encapsulated somatic embryos, the effect of the dehydration procedure on membrane phase changes is being assessed while DSC is being used to determine the relationship between optimal survival and cytoplasmic vitrification in these tissues.

Now that my group has developed an effective cryopreservation system to support the University's cocoa quarantine facility (2) we are concerned with assessing the effectiveness with which somaclonal variation (genetic mutations exhibited as a result of the tissue culture process) can be prevented. AFLP-based analysis has revealed that cryopreserved apical meristems of *Cosmos atrosanguineus* generally give rise to genetically true-to-type plants (3) while somatic embryo-derived plants have recently been found to be prone to significant levels of variation. Microsatellite-based analysis has demonstrated significant levels of chimerism in cocoa somatic embryos and the technique is now being employed to determine how such mutation frequencies are influenced by periods of cryopreservation. Current projects include collaborative work with RHS Wisley on the preservation of the national Chrysanthemum collection and with the University's School of Pharmacy on the maintenance of clonal plant lines for use in therapeutic drug development.

1. Wilkinson, T., Wetten, A. and Fay, M. (1998) Cryopreservation of *Cosmos atrosanguineus* by a modified encapsulation/dehydration method. *Cryo Letters* 19, 293-302.
2. Fang, J-Y, Wetten, A. and Hadley, P. (2004) Cryopreservation of cocoa (*Theobroma cacao* L.) somatic embryos for long-term germplasm storage. *Plant Science* 166: 669-675.

3. Wilkinson, T., Wetten, A., Prychid, C. and Fay, M.F. (2003) Suitability of cryopreservation for the long term storage of rare and endangered plant species – a case history for *Cosmos atrosanguineus*. *Annals of Botany* 91: 65-74.



## The SLTB Questionnaire 18 lessons to be learned

**Purpose:** The questionnaire was to find out what our members expect and what they would like to see the SLTB Committee do and how the Committee can achieve this.

**Material and methods:** The questionnaire was prepared with input from all members of the last Committee (term ended 29<sup>th</sup> September 2005) and contained 21 questions. It was sent out in printed form twice to the entire membership (112) together with the April and August 2005 newsletters and there were reminders about it in the 'Stop Press' on the front page of both these newsletters. It was also placed on the website where it still can be found:

<http://www.sltb.info/PDF/Questionnaire.PDF>. To keep things simple, the percentages given below are always calculated on the basis of the total number of returned questionnaires, NOT on the number of responses to a particular question/option.

**Results:** A total of 23 questionnaires were returned to the Secretary, which corresponds to 20.5%. It is difficult to call this a representative sample (irrespective of the kind of statistics applied) because the characteristics of those people returning the questionnaire is unknown. The majority of those who responded (17 out of 23 = 77.3%) have been members of the Society for more than 10 years. The main reason for becoming an SLTB member was to develop contacts, followed by 60.9% for attending SLTB meetings and 39.1% to receive the newsletter. One person liked the large plant component unlike the *Society for Cryobiology*. The 3 leading professional and research interests were "cells", "cell banking" and "conservation" (all 47.8%), followed by "tissue banking" and "gene banking" (both 39.1%). On the other hand "organ

banking” and “fungi” (both 21.7%) were the “leaders” regarding “no interest” in this category. According to the returned forms the SLTB is “relevant” to the work of 95.6% of our members, for 47.8% it is even “highly relevant”. The organization of annual meetings is “highly relevant” for 69.6%, regular newsletters are “highly relevant” for 56.5% and the website gets 34.8% in this category. One person commented that to “share scientific information and to have a few beers” is the main task. All who returned the questionnaire have attended at least one SLTB meeting, and 26% attend them regularly. Nobody gave a reason why he/she has not attended a meeting. Seventy percent think that the number of keynote lectures at the AGMs is sufficient, 65.2% think this about the free oral presentations, 73.9% with regard to presented posters but only 39.1% say this about workshops. Two people wish to see sessions on “low temperature adaptations” at future SLTB meetings, other topics (total of 12 different topics, e.g. “assisted reproduction”, “disease transmission and cryostorage”, “natural cold hardiness) were proposed only once. Nobody felt that industry had too high an influence on SLTB activities or the program of scientific meetings. Some 52.1% considered our website to be “average” with regard to the quality of information, and 60.9% think this about the form of presentation. This analysis is based on 2 people who visit it once a week, 5 who do this once a month and 13 who do this every 3 months. Two people visit the website once a year. There were 6 proposals for additional features to be shown on the website, one being the “publication of the month”.

Sixty five percent knew that the SLTB can claim back taxes from the membership dues of UK taxpayers. Three people admitted that they did not know that the SLTB newsletter can also be found on the website. One third (7 people) did not know that the SLTB constitution and the minutes are posted on the website. A Euro bank account should be opened up to facilitate payments for members in the Euro zone according to the opinion of 82.6%. Nobody judged the availability of the SLTB committee for comments and remarks to be poor, all votes ranged between average and excellent.

**Discussion:** From the low return rate (20.5%) it is clear that SLTB members do not like questionnaires or have better things to do than to reply to them (*lesson 1*). SLTB members like to make contacts (which we would expect so this is not a lesson to be learned). Interest in meetings exceeds the interest in regular information via newsletter (*lesson 2*), so this tells us something about where to put our efforts in the future. *Lesson 3* is that the interest stops at a certain size of the research topic: whereas “cell banking” and “tissue banking” are “in”, “organ banking” is not. Although the relevance of the SLTB for our members’ work (according to the returned questionnaires) is 95.6%, 79.5% do not consider the SLTB relevant enough to return the forms (*lesson 4*). The importance of our main tasks can be ranked as follows: annual meeting > newsletter > website (*lesson 5*). Those who have returned the questionnaire have attended at least 1 SLTB meeting, so we should set up more meetings to get more questionnaires returned (*lesson 6*). SLTB members are able to think logically (*lesson 7*): as all of those who have returned their form have attended at least 1 meeting, nobody gave a reason why he/she did not. Nobody said that we have too many keynote lectures, free oral presentations, workshops and posters during AGMs (*lesson 8*). As there is no outstanding topic of common interest for future sessions at AGMs (*lesson 9*), how about combining several of them into one session (e.g. “Disease transmission by assisted reproduction as an alternative to low temperature adaptation or cold hardiness”)? Nobody thought that the influence of industry on SLTB activities, including our meetings, is too high (*lesson 10*); how about changing this to allow for more free beers during the banquets (and for the Committee, more worldwide travelling and staying at better hotels)? As the form of presentation on the website (52.1%) is ranked slightly better than the quality of the information provided (60.9%), we should think about changing this by making the presentation worse (*lesson 11*). We should not update our website too frequently (*lesson 12*), as otherwise people would miss something during 2 successive visits. As one proposal was to add a “publication of the month” to the website, we have now identified one

person who will help us (*lesson 13*). We only have to find out who this person is and they can then read all the relevant literature and make a proposal (additional volunteers welcome). People seem to like to support the UK tax collection (*lesson 14*), as they know that we can claim back taxes from member dues of UK taxpayers but (almost) nobody sends back the form which can be downloaded from our website (<http://www.slbtb.info/forms.html>, click on "Gift Aid Form"). Although everybody said that he/she has already visited the website, 3 people did not know that the newsletter could be found there... The good news is that if we removed the newsletter from the website only 13% would not realize that (*lesson 15*). We could inform at least 7 more people about the fact that the SLTB constitution and the minutes of the AGMs are posted on the website. *Lesson 16* is that it is a tough job to spread information among SLTB members. Although the broad majority (82.6%) welcome the idea to open up a EURO bank account, this will not be done because of the cost in relation to the small number of "continental" European SLTB members who would benefit from this. We will have to wait until the EURO is introduced in the United Kingdom (*lesson 17*): "Fog over the Channel, the Continent cut off." I am very glad to hear that the availability of the SLTB committee for comments was judged from average to excellent by 100%.

**Conclusion:** The explanation for the poor return rate of the questionnaire (in my opinion) is that almost nobody needed this way of communication (*lesson 18, the most important one*)! ☺

Those of you who are interested in the complete set of data may wish to contact me or our past secretary Paul Lynch (email: [p.t.lynych@derby.ac.uk](mailto:p.t.lynych@derby.ac.uk)). Paul has compiled the data and also written up all proposals made regarding what would make SLTB membership more attractive for new people (question 19), what would help the SLTB to keep existing members (question 20), and any other remarks on the SLTB (question 21). A copy of Paul's "result summary" has been forwarded to the new SLTB chairperson. Good luck Tiantian and the new Committee!

Andreas Spettek  
Past Chairman

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### Life-down-under: a bunch of wild flowers

The city of Perth in Western Australia has been a media article for visiting personalities, such as, Cherie Blair during 'charitable engagements' but it is also a beautiful city that played host this September (21-24) to the Conference of the Australian Branch of the International Association for Plant Tissue Culture and Biotechnology. The theme 'Contributing to a Sustainable Future' was explored in the newly built Ecology Centre of the Botanic Gardens and Parks, in Bold Park, which is a beautiful bush reserve proved to be an ideal location for 3 days of papers and posters. The conference was a showcase for recent developments in plant tissue culture and biotechnology, highlighting contributions to sustainability in horticulture, agriculture, forestry, and conservation of the natural environment.

Plenary lectures to address issues in germplasm preservation: cryopreservation were given by Dr Erica Benson, University of Abertay, Dundee, Scotland; Legume biotechnology by Dr Sergio Ochatt, Laboratoire de Physiologie et Culture in Vitro Dijon, France; plant tissue culture past, present and future by Prof Acram Taji, University of New England, Armidale NSW Australia and aspects of sustainable agriculture by Dr Philip Davies, South Australian R & D Institute, Adelaide SA Australia.

Like the efforts in Australian cricket, the social program got off to a flying start with the welcome registration function in the palatial Ocean Room of the Rendezvous Observation City Hotel, in the beachside suburb of Scarborough - homely reminder to English guest speakers. Perth enjoys a warm to hot, dry summers and mild winters but in September, temperatures range from 10-20° Celsius and those hardy souls did enjoy swimming at Scarborough beach. There were some 60 delegates covering a wide range of oral and poster presentations from cryopreservation to ecological 'hot spots' in global biodiversity, where Professor Richard Williams (University of Queensland) delivered the Mike Mullins Memorial Lecture during the conference.

In 1999 the Australian branch of the IAPTC&B established the Ron de Fossard award to celebrate excellence in plant tissue culture and honour the contribution made to the field by Ron de Fossard, a Life Member of the Association. Parallel to the champagne-cork popping activities in Trafalgar Square following the Ashes victory, the conference dinner was held in the Boatshed Restaurant, Coode Street Jetty, South Perth a spectacular location overlooking the evening illuminations of the downtown district. During these celebrations this inaugural award at the conference in Perth was given to Prof Acram Taji for her outstanding contribution to plant tissue culture. The conference concluded with a Spring seasonal upturn in the weather during the wildflower field trip along the Darling Scarp outside Perth that allowed some rare Western Australian blooms to open. All-in-all it was a splendid conference organized by the chair Jen McComb and her organizing committee, a timely meeting in a beautiful location and venue over-layered with scientific excellence!

Further details and references can be taken from source 'Contributing to a Sustainable Future' IJ Bennett, E Bunn, H Clarke, JA McComb (Eds.) Proceedings of the Australian Branch of the IAPTC&B, Perth, Western Australia, 21-24<sup>th</sup> September, 2005. Published by: The Australasian Plant Breeding Association Inc. ISBN 0-9581784-1-0

Keith Harding



### **Algal culture collections in Europe: The need to use cryopreservation**

European microbial culture collections have provided a service to the scientific community for over a century, with the first "service collection" established by Dr Franticek Král in Prague towards the end of the nineteenth century. In the 1920's Prof E.G. Pringsheim developed the first major protistan culture collection in Prague publishing its first catalogue in 1928 (Pringsheim 1928). This collection has subsequently become the "parent", or even "grandparent", of most of the largest algal culture collections world-wide (Day et al. 2004).

As with other collections of biological materials, algal culture collections have two key functions: *they provide consistency and quality, traceable source material and information.* They are, *de facto*, sources of biological standards and without these standards comparative taxonomic, physiological, ecotoxicological and *ex situ* ecological studies are impossible or, at best, problematic. The value of collections to the user community is widely recognized, not least in that they provide cultures that are often difficult or virtually impossible to re-isolate from their natural habitats, even when the original source is known and accessible. *They provide a store of characterized diversity for research/ exploitation, or potentially, particularly in the case of macroalgae, reintroduction to their original habitats.* The holdings of algal collections are extremely diverse and it is the aim of the service collections to make available and conserve *ex situ* as much of the great morphological and genetic biodiversity of microalgae as possible. For phylogenetic and taxonomic studies authentic strains, i.e. cultures derived from the material used for the original description and naming of the species, are particularly useful - these and the vast literature published on the algal culture collections' holdings make them irreplaceable and unique international resources.

In Europe today there are debatably more protistan collections than at any time over the past century. The first algal culture collection meeting to be held in Europe "Culture Collections of Algae: Increasing Accessibility and Exploring Algal Biodiversity", held at the *Sammlung von Algenkulturen (SAG)* at the University of Göttingen, Germany, September 2-6 2002 highlighted the valuable contributions of culture collections to science (Surek 2002). This meeting was attended by representatives from 19 European collections, from 14 European countries as well as representatives from algal collections in North America and Asia. It also highlighted the diversity of European collections and the wide range of skills associated with these collections. At this meeting there was a clear consensus that there was a need to improve accessibility to biological resources at a European level and to increase cross-collection

collaboration. As a component of the Algi-Net project [www.search-labs.com/Alginet/](http://www.search-labs.com/Alginet/), a survey of collections and their holdings is ongoing. To date, this has identified the existence of 9 macroalgal culture collections and 90 microalgal culture collections. These collections vary in size from small personal academic research collections holding a “handful” of cultures, biotechnological collections to well established service collections including: the Pasteur Culture Collection of Cyanobacteria in Paris (France), Culture Collection at the Botanical Institute in Trebon (Czech Republic), NIVA Collection (Norway), ACOI Coimbra Collection of Algae (Portugal), SAG (Germany) and CCAP (UK). In total the holdings of these collections are in excess of 16,000 algal strains and undoubtedly represent the most comprehensive range of algal cultures in the world. It is planned to improve access to the holdings of these collections via the Algi-Net website and in due course the findings will be made available on-line at [www.search-labs.com/Alginet/](http://www.search-labs.com/Alginet/). One aspect of the project is to highlight how the roles of these collections, particularly the larger service collections, has expanded past the traditional curatorial role and include services such as patent deposit facilities and the supply of cultures for quality control. Indeed, service culture collections have evolved into Biological Resource Centres (BRC’s) thereby responding to revolutionary developments in areas such as molecular biology and bioinformatics. The current role of BRC’s is to provide the scientific world with access to properly maintained culturable material, in the case of algal collections with cyanobacterial and protistan cultures and their associated data. Because of concerns over strain stability and the logistical/ cost implications of maintaining large numbers of cultures using serial transfer, in recent years, there has been increased interest in the application of long-term preservation methods to algae. This was one of the drivers of the COBRA project (The Conservation of a vital european scientific and Bio**te**chnological Resource: micro**A**lgae and cyanobacteria), where a pan-European Biological Resource Centre containing cryopreserved algae was developed based on existing algal culture collections (Table 1). This

has resulted in the largest collection of its type in the world and currently in excess of 3000 cultures are held in a cryopreserved state (see previous SLTB Newsletters, or [www.cobra.ac.uk](http://www.cobra.ac.uk) for further details).

It is hoped that the foundations laid by the Algi-Net and COBRA projects can be expanded upon and it is clear that cryopreservation will remain a cornerstone of *ex situ* maintenance of protistan biodiversity.

## References

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- PRINGSHEIM, E.G. (1928): Algenreinkulturen. – Ber. Deutsch. Bot. Ges. **46**: 216-219.
- SUREK, B. (2002) Review of “Culture Collections of Algae: Increasing Accessibility and Exploring Algal Biodiversity” meeting. *Protist* **153**: 343–355.

**Table 1 - Number of cryopreserved strains held at the COBRA Collections**

Partner	Total no. cryo	% Achieved <sup>1</sup>
NERC	1110 <sup>2</sup>	>60%
IMAR	610	<40%
Uni-GOE	398	<40%
IB	526	>80%
ISB	274	Research collection held at IB
IP	881	>90%
Total	3400	~50% of total holding

<sup>1</sup>Percentage of the collections algal holdings.

<sup>2</sup>Includes a collection of 400 cryopreserved cyanobacterial cultures, which have yet to be included on the CCAP website.

JG Day & R Saxon

CCAP, Scottish Assoc for Marine Science



## Alas farewell to CRYMCEPT

Society members will recall a feature in the April 2004 newsletter regarding CRYMCEPT

(<http://www.agr.kuleuven.ac.be/dtp/tro/cry>)

[mcept/](#)) – an acronym for a European Commission Research Project (QLK5-CT-2002-01279) to Establish **CRY**opreservation **M**ethods for **C**onserving **E**uropean **P**lant **T** Germplasm Collections. This project was funded by the EU's Fifth Framework Programme for Quality of Life and Management of Living Resources: Key action 5 'Sustainable agriculture, fisheries and forestry, and started in November 2002 for three years. Although, it seems like yesterday, the 3 years are now up and the project has reached its conclusion, this culminated in the final steering committee meeting in Montpellier, France and two jointly organised CRYMCEPT and IPGRI cryopreservation training workshops for plant germplasm. One was held in Leuven, Belgium (12-22 Sept and the other in Montpellier, France 10-21 Oct).

The 4<sup>th</sup> Steering Committee of the CRYMCEPT project took place at the International Plant Genetic Resources Institute, INIBAP office in Montpellier, France (7<sup>th</sup> October). It brought together the project partners for the last time before the end of the project. Richard Markham, Director of the IPGRI/INIBAP Office welcomed participants and gave an overview of the IPGRI's programme on commodities crops, (particularly banana, cocoa, and coconut) for livelihood and sustainable activity. Each CRYMCEPT partner gave a presentation of their work performed in the different work packages in which they were involved during the final year of the project. These were followed by a discussion of each work package and a general discussion of the main results achieved and the lessons learnt in the overall project. Overall the project has been a huge success with many scientific achievements both published and those to come. As with most projects, the realisation of the true magnitude of the efforts during the 3 years is often seen after its completion in the total volume of outputs. These productions cover a range of subjects: from the thermal behaviour of water; protein function; understanding sugars; membrane components; the significance of polyamines; cytoskeletal proteins; the induction of oxidative stress; all leading to the development of new cryopreservation protocols, and finally the dissemination of improved cryopreservation protocols and analytical

techniques to existing European germplasm collections and research institutes *via* the workshops.

Integral to this projects' evaluation - is the exercise in the preparation of reports. The partners within the steering group received a briefing session on the reporting requirements for the CRYMCEPT project to the European Union, as specified in the EU document on guidelines for the preparation of periodic and final reports. The reports to be prepared include: (1) a report for the 4<sup>th</sup> Steering Committee meeting; (2) a periodic report; (3) a final report; (4) a Technological Implementation Plan (eTIP) and (5) cost statements for the project. Highlighting the most important report to prepare was the final report, which will provide the detailed scientific results presenting the objectives, work and results achieved during the lifetime of the project. Once these reports are complete and following approval, like the COBRAL issue (Aug05 newsletter) a summary reporting the outstanding scientific achievements will be a feature for the next newsletters.

The two workshops targeted germplasm collection holders in Europe, as well as countries from the EU international co-operation programme; each was attended by some 15 representatives of member states mainly from across Europe, but also had representatives from Africa, Asia and Latin America. The theme was to address the urgent need to develop cryopreservation techniques for important plant genetic resources, which otherwise could not be adequately conserved using conventional methods. The workshop(s) task was to disseminate the results of the CRYMCEPT research to develop optimal cryopreservation protocols for a number of plants such as garlic, olive, *Ribes*, apple, almond, potato, banana and coffee. After an almost 2 week exhausting exercise, the remaining participants received their certificate for training in cryopreservation and departed home delighted with the cooperation, scientific information and outcome of the Workshop. An apt conclusion to end what was a very enjoyable EU-project, in sowing the seeds for the next generation in plant cryopreservation.



## **COST CRYO-Action Programme 2005...**

There are many words said within a working day, and the word 'cost' can stir a variety of images, as it flickers across the memory ingrams but in 1970s it was the beginning of a bold scheme to establish scientific links throughout Europe. Founded in 1971, COST is an intergovernmental framework for European Co-operation in the field of Scientific and Technical Research, allowing the co-ordination of nationally funded research on a European level (<http://www.cost.esf.org/index.php>).

Highly relevant to SLTB and members involved in the cryopreservation of plant germplasm, a more recent COST action 843 deals with various aspects of plant production through tissue culture, and has two main objectives: innovation of plant propagation methods, and plant quality enhancement – key issues in the success of plant cryopreservation. COST 843 is organised in three Working Groups dealing with the following topics: WG 1, Developmental biology of regeneration; WG 2, Advanced propagation techniques; WG 3, Assessment of performance: physiological health and (epi-)genetic stability (<http://www.cost843.org/>)

Although, cryopreservation was considered a minor activity in this COST action, it was generally recognized that a prerequisite for the development of new propagation-cryopreservation techniques is the fundamental knowledge about the regeneration process. In all Working Groups, there were components with molecular, biochemical, physiological and histological studies on adventitious regeneration of shoots and embryos regarding aspects of manipulation of competence to regenerate, induction and maintaining of embryogenic callus, study of genes involved in regeneration (transformation or differential expression), (cryo-) recalcitrance and rejuvenation. The papers in the issue (Plant Cell, Tissue and Organ Culture 70: 123, 2002) are based on selected presentations given during the first meeting of Working Group I of COST action 843, held from 12 to 15 October 2000 at Geisenheim, Germany. As the COST action proceeded, on one occasion, it was decided during

Management Committee Members (MCM) in Brussels on January 2004, to organize joint final meeting with participation of all working group (WG1, WG2, WG3) and MC members in Stara Lesna, Slovakia for the final COST 843 conference, as the COST Action was due to end in 2005.

As we have seen, all EU research programmes come to an end, however inspired members of the complete CRYMCEPT and COBRA projects and the previous COST programme have agreed to conspire against the 'lack of funding' for cryoconservation and have prepared a preliminary proposal for a new cost action on plant cryopreservation mainly dealing with networking, organization of yearly meetings, short term lab-training sessions. Surprisingly, the initial EU response to this initiative has been very positive for the submission of more complete proposal in the subject of plant cryopreservation. Although, there are still many hurdles to jump before the final outcome, this is truly encouraging news, as this funding and subsequent networking will be a major factor in the development of scientific advances for cryopreservation.

It is fair to surmise, that the proposal is in the 'draft stage' and this allows the opportunity to invite members of the SLTB (and other plant related colleagues) that if you are interested to join this proposed COST ACTION, and would like to play an active role or would like more information to contact the ACTION coordinator Bart Panis ([bart.panis@biw.kuleuven.be](mailto:bart.panis@biw.kuleuven.be)) or Keith Harding ([k.harding@abertay.ac.uk](mailto:k.harding@abertay.ac.uk)).



### **Cryopreserving Chrysanth's**

Chrysanthemum cultivation began in China and is described in writings as early as the 15th Century B.C. As well as their use as the source of one of the most important naturally occurring insecticides, chrysanthemums also constitute a major part of global cut flower sales. The National Chrysanthemum Society (NCS) is looking to arrest the gradual disappearance of old varieties of the plant through a new collaboration with the University of Reading's School of

Biological Sciences. Meristems are being targeted for propagule storage through encapsulation/dehydration with the first regenerants exhibiting the additional benefit of virus elimination.

Andy Wetten



### Interesting research tool

The Postgraduate School at Writtle College will take delivery of the first UK-installed Sperm Vision™ system just before Christmas. Delivered by MTG – Medical Technology Vertriebs-GmbH, the system provides digital-image technology to track, record and analyse a wide range of sperm motility and motion characteristics, monitoring up to 95 spermatozoa in a single field. The integrated database allows motility information to be compared, immediately, against previously recorded information.

Our immediate use for this system is in studies of cryopreservation of horse and ram sperm, but we are keen to collaborate on other projects involving frozen semen. We are also interested in using the potential of the system for monitoring the post-cryo performance of other, motile cells such as unicellular algae and protozoa and would be pleased to discuss possible collaborations with any of you that are interested.

Brian Grout



### CRYO 2006 Hamburg 24<sup>th</sup>–27<sup>th</sup> July

The meeting will be held as the 43rd Annual Meeting of the Society for Cryobiology in association with the SLTB and will cover a wide range of subjects including hypothermia, physiology of resistance to cold in plants, and applications of cryobiology in conservation, surgery, cell, tissue and organ preservation. Relevant aspects of biology, molecular biology, physics, chemistry, physical chemistry, biochemistry, physiology, medicine, transfusion medicine, mechanical engineering, tissue engineering and

transplantation will also be covered. The format will be the “classic” one, i.e. a reception on the evening of the day preceding the meeting, followed by a four day scientific meeting. On the first day David Pegg will organize a symposium (working title: “Clinical Applications of Low Temperatures”). On the morning of the second day we will have lectures on plant low temperature biology organized by Dirk Hinch. In the afternoon there will be a guided bus tour of Hamburg, and a combined barbecue/canoe event. On the third day Ursula Rauen has agreed to organize lectures on the topic of “hypothermia”. The traditional banquet will take place during the evening of the last day.

### Deadlines

**Early registration:** Before 1<sup>st</sup> June 2006. A “Call for Abstracts” will go out in January 2006.

**Abstract submission:** Until 1<sup>st</sup> May 2006. The registration form and the form for abstract submission will be available on the web by the end of January 2006. Please watch the meetings website at <http://www.CRYO2006.org> for further details.

**Notification of abstract acceptance:** 31<sup>st</sup> May 2006

**Accommodation:** To be announced, see website.

Andreas Sputtek, Chairman  
CRYO 2006 Organizer



### From the Treasurer

As the current year draws to a close it is my job as Treasurer to prompt you to think about a New Year resolution to pay your 2006 subscription as soon as possible [indeed, there are a notable few of you who have already done so!]. This might also be the time to ask the flagging few who have yet to pay for 2005 to clear their conscience by wrapping this payment up with 2006.

Our current charges are £20 for standard membership and £15 for students.



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