

# EUROPEAN CHITIN SOCIETY

# NEWSLETTER

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- Editorial
- Message from the President
- Standardisation of chitosan - parameters and measuring methods  
*Anika Muench, Katja Heppe*
- 11<sup>th</sup> International Conference on Chitin and Chitosan and 8<sup>th</sup> Asia-Pacific  
Chitin and Chitosan Symposium
- Coming events



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## EDITORIAL

Now the ‘noughties’ decade is behind us, the European Chitin Society has moved into what unfortunately seems likely to be called the ‘tennies’ decade. This will include, in 2011, both the bicentenary of Henri Braconnot’s seminal paper on the isolation of chitin from fungi and also, with perfect timing, the 10<sup>th</sup> EUCHIS meeting. This will be held in St. Petersburg, hosted by the Russian Chitin Society, and details about the meeting are available on our website. It should be quite an occasion.

Looking at this year there is more activity than might at first be expected. There is the 5<sup>th</sup> SIAQ (Iberroamerican Chitin Society) symposium in Chile at the beginning of March (7<sup>th</sup> -10<sup>th</sup>), and again there are details on our website. Additionally I have received information about two national conferences: the 6<sup>th</sup> Thai National Chitin-Chitosan Conference in Bangkok on 26-26<sup>th</sup> August, and the 16<sup>th</sup> Polish Chitin Society meeting in Zakopane on 22<sup>nd</sup>-24<sup>th</sup> September. More information about both these meetings can be found elsewhere in the *Newsletter*.

One frequent topic of debate at chitin conferences is that of standardisation of methods of analysis for the most important parameters of chitosan – and indeed what are the most important parameters. This was discussed in special sessions at EUCHIS ’07, at the 11<sup>th</sup> ICCC meeting last year, and is due to be discussed at the 5<sup>th</sup> SIAQ meeting in Chile next month. The article by A Münch and K Heppe printed in this issue of the *Newsletter* is therefore very timely. It arises from the discussions at the 11<sup>th</sup> ICCC meeting and is an appeal for both chitosan samples for analysis and for researchers willing to collaborate in the subsequent inter-laboratory trials to establish the best techniques for determining a number of the parameters used to characterise chitosan. It is hoped that as many EUCHIS members as possible will get involved in these trials so that this often discussed issue can at last be resolved.

George Roberts

Honorary Secretary



### MESSAGE FROM THE PRESIDENT

Dear members of the *EUCHIS family*,

I am happy to say that we have ended the year “2009” with very successful events and contributions in the chitin and chitosan world!

The ICCC meeting held in September, 2009 in Taipei was indeed a great success thanks to the great efforts of Prof. Chen and his wonderful team. Furthermore, the contributors were also very enthusiastic sharing their experience and recent results in their fields. This was certainly enhanced by the excellent organisation as well as the breath-taking beauty of Taipei and great hospitality of Taipei colleagues! Among the plenary lecturers, Prof. Alain Domard’s lecture had the longest title which was a summary of his long and successful journey in the chitin and chitosan world covering his many significant contributions in this field which have provided many basic physicochemical principles for chitosan. Prof. Domard announced at this meeting that he was retiring as from October 2009, but I am sure the chitosan family will continue to receive his contributions and support after his retirement.

As you will find in the following sections of this issue, 2010 will see important events being hosted in different parts of the world, and as the European Chitin Society, with all our members, we will have great pleasure in continuing to give support to our colleagues.

I wish you all a very successful 2010 in good health and peace!

Sevda Şenel  
President of EUCHIS

## **Standardisation of chitosan – parameters and measuring methods**

### **Wanted: participants for international inter-laboratory comparison program**

Authors: Anika Muench, Katja Heppe

The important parameters for the characterisation of chitosan, and the most suitable techniques for determining them, have been discussed for several years now, but without any resolution. The need to agree definitions/descriptions of chitin and chitosan and to harmonise measuring techniques has been discussed repeatedly at international conferences. Research results are difficult to compare because there are no agreed standard procedures for the characterisation of chitosan as yet, and so different measuring methods may be used by different groups, hence results are frequently not comparable on a one-to-one basis. Standardised descriptions of chitin and chitosan, together with agreed analytical techniques are essential if these polymers are to receive acceptance by regulatory authorities in the pharmaceutical and medical sectors. This approval would ease the breakthrough of this magnificent polymer particularly in the pharmaceutical industry.

To promote the standardisation process ten parameters were proposed at the ICCC in Taipei to characterise chitosan. These are:

1. Identity – e.g. IR spectrum
2. Appearance of powder
3. Degree of deacetylation
4. Viscosity
5. Loss on drying/dry matter content
6. Ash content
7. Protein content
8. Heavy metal content (Pb, Hg, Cd)
9. Microbiological quality ( total viable count, fungi)
10. Endotoxin level

The measuring methods also need to be harmonised since different methods of analysis may, in some cases, lead to different results for the same parameter. To determine the most common and practicable method of analysis for each parameter, the initiation of an inter-lab comparison program was decided on at the ICCC 2009 in Taipei. The aim of the program is to standardise the methods for the characterisation and analysis of chitosan on an international level.

So now research institutions and manufacturing companies are urged to participate in this program. EUCHIS board member Katja Heppe is entrusted with the organisation of the inter-lab program. Research and industrial partners are kindly asked to contact Katja Heppe by filling in the participation form and sending it to her. The form is available at:

[www.gmp-chitosan.com/en/standardization-of-chitosan.html](http://www.gmp-chitosan.com/en/standardization-of-chitosan.html)

**Schedule (note: all samples will be blind)**

- a) In a first step participants (laboratories and producers if desired) are kindly asked to provide information on the parameters that will be examined and the analytical methods to be used, as well as the amount of chitosan required (see forms on above mentioned website). Deadline: March 15.
- b) In the meantime chitosan producers are requested to provide several samples including certificates (addressed to – see form). All samples will be gathered centrally and then distributed according to the amount needed. Deadline: March 31
- c) The samples will be sent to all participating laboratories and producers who are interested in carrying out the analyses. Deadline: April 30.
- d) The laboratories will analyse the parameters according to their methods and send the results back to Katja Heppe. Deadline: July 31
- e) The results will then be collected and presented to all participants and the chitin and chitosan societies. Deadline: September 30.
- f) Presented results are up for discussion until November 30. According to that a final conclusion will be prepared and presented to all chitin Societies.

Please note that there is no official fund for this program. Neither the costs of providing samples for participants to analyse, nor the costs incurred in analysing them, can be covered. The distribution of samples to all participants involved in their analysis, and the provision of the summary and the final report, will be paid for by Heppe Medical Chitosan. Your participation is voluntary, but would be very much appreciated.

We all hope for the support of the whole chitosan community so as to successfully implement the program. Please participate as researchers or producing partners to identify important parameters and validate appropriate measuring techniques and methods of analysis. Take your share in the standardisation of chitosan and support enhancing the potential of chitosan. Standardisation would mean a breakthrough because then the main condition for accepting chitosan for pharmaceutical applications by regulatory authorities would be fulfilled.

For any further questions or suggestions please contact Katja Heppe via E-mail.

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## 11<sup>th</sup> International Conference on Chitin and Chitosan and 8<sup>th</sup> Asia-Pacific Chitin and Chitosan Symposium



The above joint conference was the main event to have taken place since the last issue of the *Newsletter*. It was held in Taipei, Taiwan in early September, and was organised by the Taiwan Society for Chitin and Chitosan under the Chairmanship of Professor Rong-Huei Chen. Although the majority of delegates were from the Asia-Pacific region there was a good contingent from Europe and from North and South America. The meeting itself was held in the International Building of the National Taiwan University of Science and Technology, about 10 minutes walk from the Leader Hotel where many of the overseas delegates were accommodated, and every morning and evening we were escorted between the hotel and the conference and back again by tireless and very attentive guides. The International Building itself is ideally suited for conferences having a main lecture hall together with several excellent smaller lecture theatres, so enabling three parallel sessions to be run simultaneously. There were also catering facilities on the 12th floor where both lunch and superb views over Taipei could be enjoyed simultaneously. Lunches were buffet style which was very convenient, allowing the delegates to mix and have informal discussions over the lunch period. One example of the rigorous planning behind the smooth running of the conference is that all delegates were screened for incipient swine flu each morning before entering the International Building. Surprisingly this did not cause any disruption or hold-up at the main entrance.

The conference followed the normal pattern of ICCCs, with Plenary, Keynote, Oral and Poster presentations. It is perhaps invidious to single out individual presentations, most being of a high standard, but the highlights for me, both in terms of content and style of delivery, were the plenary lectures from Professors Chi-Huey Wong, on carbohydrate-based pharmaceuticals, Gregory Payne, on the development of chitosan-based lab-on-chip devices and lastly Alain Domard, whose valedictory presentation was a review of his researches on chitosan over almost 3 decades and was a true *tour de force*. There was a very full schedule of oral presentations so it was not until quite far into the conference that I found time to go round the posters. Again, these were of a high standard.

Despite the packed programme the organising committee was able to fit in a round table discussion on the issue of regulation of chitin and chitosan for medical and pharmaceutical applications. Unfortunately all the strenuous and prolonged efforts by Professor Chen to attract speakers from both the FDA and the equivalent body in the European Union were unsuccessful, but despite this some progress was made and, as can be seen from an earlier entry in this issue, inter-laboratory trials are being set up. It is hoped that there will be a good response from EUCHIS members to the request for both samples for analysis and offers to carry out the analytical work. Another meeting discussed the sequence of the next three ICCCs and decided on South America in 2012, Europe in 2015, and Asia-Pacific in 2018.

The conference outing was very enjoyable and included a visit to a former gold mine, now a museum, and to an ethnic folk park where the tour concluded with a superb puppet show, before we were transported to the conference banquet where in addition to a excellent meal we were treated to a display of ethnic dancing, with some of the delegates joining in for the final dance. Then transport back to the hotel and as the eminent 17<sup>th</sup> century diarist Samuel Pepys frequently wrote “and so to bed”.



*The three co-chairs toast the success of the meeting during the conference banquet*

The only reservation I have about an otherwise excellent conference is that no official Proceedings are to be published, arrangements having been made for authors to submit their papers to *Carbohydrate Polymers* for publication in a special issue following the usual peer review. I am concerned that this will result in some of the presentations remaining unpublished, which will be unfortunate. I know that this is a growing trend, due to the cost and time delay normally involved in producing conference proceedings in book form, although EUCHIS '07 emphatically disproved the idea that there has to be a long delay between the conference and the Proceedings appearing in print; cost may be another matter. However it should be possible, by applying strict deadlines, to download all the presentations, including posters, onto a disc that could be given to the delegates before leaving the conference. As a confirmed lover of the printed word that would still leave me less than fully satisfied, but it might be a suitable compromise.

George Roberts  
Honorary Secretary



## **6<sup>th</sup> Thai National Chitin-Chitosan Conference**

The 6<sup>th</sup> biennial Thai National Chitin-Chitosan Conference (6<sup>th</sup> NCCC) will be held in the Miracle Grand Convention Hotel, Bangkok, on 26<sup>th</sup> – 27<sup>th</sup> September, 2010. It is being jointly organised by the Center for Chitin-Chitosan Biomaterials (CCB) and the National Metal and Materials Technology Center (MTEC). The conference will cover the basic knowledge and application of chitin and chitosan in the following topic areas: agriculture, food, medicine, textiles and nanotechnology. The meeting is open to non-nationals and presentations can be either in Thai or English. Authors of accepted papers for either oral or poster presentation are invited to submit full papers for publication in the Journal of Metals, Materials and Minerals, where they will be subject to the usual process of peer review and editorial revision. Extended abstracts for presentations (oral or poster) should be submitted by April 23<sup>rd</sup>, 2010, and the deadline for full paper submission is August 27<sup>th</sup>, 2010, at the Conference Registration Desk.

The 6<sup>th</sup> NCCC is being run in conjunction with the 6<sup>th</sup> Thailand Materials Science and Technology Conference (MSAT-6), organised by MTEC, and the Thailand Textile Symposium 2010 (ThaiTEX2010), jointly organised by the Center of Excellence in Textiles, Chulalongkorn University and MTEC. Although they are three separate conferences, registration for one entitles you to attend any of the presentations at all three conferences, so they are, in effect, like a single, multi-parallel-session conference. Topics to be covered in MSAT-6 include: materials for the environment; materials for food & agriculture; and materials for health & medicine - all of which might well be of interest to chitin/chitosan researchers. The same applies to the presentations at ThaiTEX2010, which will have oral and poster presentations in the following topic areas: textile materials; textile technology; textile biotechnology; and smart textiles. These are all in addition to the presentations at 6<sup>th</sup> NCCC itself.

The registration fee is 1600 Thai Baht (~ 35 euros) up to 16<sup>th</sup> July and 2000 Thai Baht (~ 44 euros) after that date. More general details about the meetings can be obtained from [www.mtec.or.th/msat-6](http://www.mtec.or.th/msat-6) and particular details about the 6<sup>th</sup> NCCC by e-mail from Dr Pranee Lertsutthiwong at [Pranee.L@chula.ac.th](mailto:Pranee.L@chula.ac.th).

## **Polish Chitin Society 2010 Meeting**

The Polish Chitin Society is holding the next of its long-running series of annual meetings in Zakopane on 22<sup>nd</sup>-24<sup>th</sup> September, 2010. Zakopane is a popular resort town about 50 km due south of Krakow. It on the edge of the Tatra mountains, and with an elevation of 800-1000 metres is the highest town in Poland. Although it is a 'national' meeting, non-nationals are made very welcome. While a number of the presentations are in Polish, with slides labelled in English in most cases, both the Abstracts (supplied at registration) and the Proceedings are published in English.

### ***POLISH CHITIN SOCIETY***

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*Below is an invitation from the President of the Polish Chitin Society.*



Dear Colleagues,

In the name of the Board of the Polish Chitin Society I have both the pleasure and the honour to invite you to participate in the XVI Seminar and Workshop on "New Aspects of the Chemistry and Applications of Chitin and its Derivatives" that will be held in Zakopane, Poland, on 22<sup>nd</sup> – 24<sup>th</sup> September 2010.

The Polish Chitin Society was founded in June 1993 and since that time it has organized its annual meetings in different interesting places in Poland. The aim of the conference is to present the results of the recent research, development and applications related to chitin and chitosan. It is also our intention that the conferences give an opportunity for researchers working in different fields to meet and exchange their experiences in a relaxed environment.

The cost of the Conference is 650 PLN (approx. 165 euro) which covers all meals, including the conference dinner, and the conference Proceedings, but does NOT include the cost of hotel accommodation. We would appreciate receiving notice of your interest in attending the Seminar by e-mail ([jaworska@ichip.pw.edu.pl](mailto:jaworska@ichip.pw.edu.pl)) by 15 March 2010.

Best regards

Dr Malgorzata M. Jaworska  
***President of Polish Chitin Society***