COST ACTION E50 CELL WALL MACROMOLECULES AND REACTION WOOD (CEMARE)

Workshop Potsdam September 26th-28th, 2007

Structure and function of primary and secondary cell walls

Programme

Wednesday, September 26th

08:30 - 09:00 Registration

09:00 – 09:15 Welcome

WG1: Biosynthesis and structure of cellulose and polysaccharides

Chair person: Anne Mie Emons

09:15 – 10:00 *Markus Pauly, Sascha Gille, Ulrike Haensel, Mark Ziemann:*
Identification of cell wall mutants by a hydrolase screen (invited talk)

10:00 – 10:25 *Lutz Neumetzler, Nicolai Obel, Kazuchika Yamauchi, Ingo Burgert, Markus Pauly*
Analysis of mutants with altered xyloglucan (axy) structures using Oligosaccharide Mass Profiling (OLIMP)

10:25 – 10:50 Coffee break

10:50 – 11:35 *Jordi Chan, Grant Calder, Samantha Fox, Clive Lloyd*
Rotating microtubules and cellulose synthesis (invited talk)

11:35 – 12:00 *Jelmer Lindeboom, Anne Mie Emons*
Pattern formation of cellulose microfibrils and cortical microtubules

12:00 – 12:25 *Kostya Shundyak, Bela Mulder*
Emergence and stability of textures of cellulose microfibrils in the plant cell wall

12:25 – 12:50 *Andrew Parkin, Adriana Šturcová, J. Paul McLean, Clemens Altaner, Michael C. Jarvis*
Microfibril width and structure in cellulose from primary walls of celery collenchyma and secondary walls of spruce wood

12:50 – 14:00 Lunch

WG2: Biosynthesis and modification of lignin

Chair person: Kurt Fagerstedt

14:00 – 14:45 *Kazuhiko Fukushima*
Formation and structure of lignin in tree xylem (invited talk)

14:45 – 15:10 *Kurt Fagerstedt, Kaisa Marjamaa, Eija Kukkola, Sanna Koutaniemi, Tino Warinowski, Teemu H. Teeri, Heidi Holkeri,Taina Lundell*
Lignification and class III peroxidases of Norway spruce (*Picea abies*)

15:10 – 15:35 *Véronique Aguie, Laurence Foulon, Miyuki Takeuchi, David Cronier, Anouk Habrant, Araik Hambardzumyan, Roger Douillard, Brigitte Chabbert*
Development of cellulose-based model systems for the study of interactions among wall components

15:35 – 16:10 Coffee break

16:10 – 16:55 *Lacey Samuels*
New views of cell structure and lignin deposition during wood development (invited talk)

16:55 – 17:20 *Gerald Koch, Christian Lehringer, Uwe Schmitt*
Application of scanning UV microspectrophotometry for the topochemical detection of aromatic compounds in the G-layers of tension wood fibres

17:20 – 17:45 *Susanne Huyskens-Keil, Werner B. Herppich*
CO_2-mediated effects on biochemical properties of the cell wall and their influence on mechanical attributes of white Asparagus spears

18:00 – 20:00 **Poster session**

P1: *Véronique Douet, Mustapha Tiouabi, Eliane Abou-Mansour, Brigitte Pollet, Catherine Lapierre, Pia A Stieger*

Mechanical stimuli and vascular tissue differentiation

P2: *Tero Kesti, Chun Ye*

Rapid measurement of the microfibril angle of single wood fibres by spectroscopic transmission ellipsometry

P3: *Johnny Mukoko Bopopi, Olivier Vandeputte, Mondher El Jaziri, Brigitte Chabbert, Marie Baucher*

Chemical characterization of cell walls from transgenic tobacco overexpressing *PtaRHE1* and *PtaERF1*, two genes linked to vascular development in aspen

P4: *Seija Kaakinen, Riikka Piispanen, Satu Lehto, Johanna Pohjanen, Urban Nilsson, Sune Linder, Pekka Saranpää, Elina Vapaavuori*

Effect of nutrient optimisation on Norway spruce wood properties

P5: *Paul Ander, Geoffrey Daniel*

Degradation of spruce pulp fibres by HCl and cellulases reflects different action on the fibre cell walls

P6: *Wolfgang Graf, Werner B. Herppich, Susanne Huyskens-Keil, Heiner Grüneberg*

Cell wall chemistry and mechanical strength of the peduncle of cut roses

P7: *Jana Dlouha, Joseph Gril, Bruno Clair*

Physical aging and its impact on the characterisation of viscoelastic properties of green wood

P8: *Frédérique Nolin, Anouk Habrant, Godfrey Neutelings, Simon Hawkins, Brigitte Chabbert*

Peroxidases and lignification in flax stem

P9: *Karl Bytebier, Oliver Arnould, R. Arinero*

Mechanical characterization of wood at the submicrometre scale: a prospective study

P10: Mireille Cabané, *Nicolas Richet, Rana El Zein, Françoise Huber, Brigitte Pollet, Jacques Banvoy, Pierre Dizengremel, Catherine Lapierre, Patrick Perré, Dany Afif*

Ozone alters cellulose and lignin biosynthesis in tension wood of poplar

18:00 – 20:00 **Poster session (continued)**

P11: *Kazuchika Yamauchi, Willie Abasolo, Lutz Neumetzler, Markus Pauly, Ingo Burgert*
Mechanical properties of Arabidopsis hypocotyls treated with XEG

P12: *Michaela Eder, Nasko Terziev, Geoffrey Daniel, Ingo Burgert*
Tensile properties of single Norway spruce fibres with different amounts of dislocations

P13: *Markus Rüggeberg, Thomas Speck, Ingo Burgert*
Fibre-matrix-transitions in palm trees – structure and mechanics

P14: *Sebastian Busch, Anja Liszkay, Thomas Speck*
Influence of reactive oxygen species on mechanical properties of wound healing cells

P15: *Nicole Schreiber, Notburga Gierlinger, Ingo Burgert, Peter Fratzl, Norbert Pütz*
Investigations on root contraction in red clover (*Trifolium pratense*)

P16: *Notburga Gierlinger, Puneet Singla, Julien Ruelle, Bruno Clair*
Chemical imaging of tension wood in tropical rain forest species by Confocal Raman microscopy

P17: *Ralf Möller, Markus Pauly, Sarah Hake, Marcel Toonen, Jan B. van Beilen, Elma Salentijn, David Clayton, Dianna Bowles*
Lignocellulose feedstocks for cell wall biorefining

Thursday, September 27th

WG4: Relating wood and fibre properties to structure and formation

Chair person: Pekka Saranpää

08:30 – 09:15 *Peter Fratzl, Ingo Burgert*
From air-humidity driven actuators in plants to biomimetic micro-devices

09:15 - 09:40 *Carole Assor, Tuan Dinh, Philippe Jacquin, Gilles Pilate, Patrick Perré*
Mechanical tests on microsamples of normal and tension wood of poplar upon radial, tangential and longitudinal directions

09:40 – 10:05 *Mohammad R. Asgharipour, Lisbeth G. Thygesen*
The effect of growth conditions on the amount of dislocations in hemp fibres

10:05 – 10:30 Coffee break

10:30 – 11:15 *Frank W. Telewski, Lothar Koehler, J. Al-Haddad, Kyu-Young Kang, Shawn D. Mansfield, Frank W. Ewers*
Characteristics of the thigmorphogenetic response in the xylem of F5H over-expressed *Populus tremula* x *P. alba*, clone 717 (invited talk)

11:15 – 11:40 *Kristofer Gamstedt, Stig L. Bardage*
Modelling approaches to three-dimensional hygroelastic behaviour of compression wood and their tracheids

11:40 – 12:05 *Jasna S. Stevanic, Lennart Salmén*
Interaction among polymers in the primary cell wall of Norway spruce (*Picea abies* (L.) Karst.)

12:05 – 13:15 Lunch

WG3: Formation and induction of reaction wood

Chair person: Uwe Schmitt

13:15 – 14:00 *Brian Butterfield*
Towards understanding compression wood (invited talk)

14:00 – 14:25 *Gilles Pilate, Miyuki Takeuchi, Dominique Arnaud, Annabelle Dejardin, Françoise Laurans, Marie-Claude Lesage-Descauses, Régis Fichot, Franck Brignolas, Jean-Charles Leple.*
Functional genomics of fibre differentiation in *Populus*

14:25 – 14:50 *Primož Oven, Maks Merela, Igor Serša*
Structural response and moisture alterations in wounded tissues of beech

14:50 – 15:15 Coffee break

15:15 – 16:00	*Fang Huang, Marcelo K. Zago, Helene Robert, Ab Quint, Carlos S. Ampudia, Remko Offringa* Plant AGC protein kinases: a compass that orients auxin-dependent plant growth and –development (invited talk)
16:00 – 16:25	*Bruno Clair, Joseph Gril, Pierre Cabrolier, Francesco Di Renzo, Hiroyuki Yamamoto, Françoise Quignard* Structural characterisation of G-layer allows to explain longitudinal shrinkage in chestnuts tension wood
16:25 – 16:50	*Luna Goswami, Karin Jungnikl, John Dunlop, Catherine Coutand, George Jeronimidis, Peter Fratzl, Ingo Burgert* Enzymatic removal of the G-layer - New insights into its mechanical role

Boat Trip & Conference Dinner

Friday, September 28th

09:00 – 10:45	Individual working group meetings
10:45 – 11:15	Coffee break
11:15 – 12:30	Final session
12:30 – 14:00	Lunch
14:00 – 16:00	Management Committee Meeting