

The 14th International Symposium on Cellulose Chemistry and Technology
September, 8-10, Iasi, Romania

The 14th International Symposium on Cellulose Chemistry and Technology, held on September 8-10, 2010, in Iasi, Romania, has been dedicated to the memory of Cristofor I. Simionescu, founder of the Romanian school of pulp, paper and fibers, on the occasion of his 90th birthday celebration.

The first symposium was organized by Cristofor I. Simionescu in 1961, being followed by other 13 events, gathering along the years numerous scientists from Romania and abroad. At the same time, professor Cristofor I. Simionescu, together with famous scientists working in this field, founded the international journal *Cellulose Chemistry and Technology*.

Particularly in recent years, the studies devoted to natural resources have been approached within a larger frame, as due to the possibilities they provide to sustainable development. Under these conditions, the pulp and paper industry can be considered as the only branch meeting this criterion. At present, there is an increased interest to integrate this field in the concept of biorefining. In this way, the complex processing of biomass, including pulp and paper industry can be assured, along with environmental compatibility. On the other hand, the global climatic changes we are now witnessing require special measures for forest protection and for exploiting other renewable resources, such as annual plants or fast growing tree species, apart from increasing the degree of waste paper recycling. Scientists are especially concerned with developing different other applications for the main and secondary compounds of biomass, along with opening up new research directions for obtaining biofuels, biopower, biobased chemicals and high-tech materials based on natural raw products. The concepts of Green Chemistry and White Biotechnology were developed as teaching and research activities – at present, they also involve our field. Some results obtained in the last years are ready to be developed and applied at pilot or industrial scale.

All these aspects were debated in the papers presented at this symposium (see the attached program). The Proceedings of the Symposium are available at: thmalu@tuiasi.ro.

Valentin I. Popa
Chairman of the Organizing Committee

THE 14th INTERNATIONAL SYMPOSIUM ON CELLULOSE CHEMISTRY AND TECHNOLOGY

In memoriam Academician Cristofor I. Simionescu



PROGRAMME

IAȘI – ROMANIA, September 8-10, 2010

Bioresources. Biocomposites

Chairman Prof. Valentin I. Popa

1. Study of plant biomasses used for production of biofuel
M. Ioelovich
2. Novel Aspects of Nano-Cellulose
Kay Hettrich, Bert Volkert
3. Destruction of cellulose derivatives in solution in the presence of ascorbic acid
Juris Zoldners, Tatiana Kiseleva
4. Effect of two fungal strains of *Coprinellus disseminatus* SH-1 NTCC-1163 and SH-2NTCC-1164 on pulp refining and mechanical strength properties of wheat straw soda-AQ pulp
C. H. Tyagi, Shalini Singh and Dharm Dutt
5. Characterization of grape seeds aqueous extract and possible application in biological systems
Ioana Ignat, Alina Stingu, Irina Volf and Valentin I. Popa
6. Morphological and thermal study on wood decay by *Chaetomium globosum*
Carmen-Mihaela Popescu, Cornelia Vasile
7. Theoretical study of the inclusion process of 5-flucytosine with β -cyclodextrin by semi-empirical method PM3
Adrian Fifere, Narcisa Marangoci, Nicusor Fifere, Mariana Pinteala

Natural and synthetic polymers

Chairman: Dr. Irina Volf

8. Comparative study on the adsorption of copper(II) from aqueous solutions using different types of non-wood lignins
Tatiana Todorciuc, Laura Bulgariu and Valentin I. Popa

9. Novel cellulose-xanthan hydrogels for biomedical applications

Diana Ciolacu

10. Lignin grafting with fatty acids during cold plasma conditions

Oana Chirila, Marian I. Totolin, Cornelia Vasile and Georgeta Cazacu

11. Synthesis and characterization of novel semi-interpenetrating polymer network hydrogels based on polyacrylamide and dextran

Maria Valentina Dinu, Maria Marinela Perju, Maria Cazacu, Ecaterina Stela Dragan

12. The effect of enzymatic degradation on the thermo-mechanical behavior of lignin-polyurethane polymer systems

Leonard Ignat, Maurusa Ignat, Elena Stoica, Constantin Ciobanu, Valentin I. Popa

Paper recycling

Chairman: Prof. Elena Bobu

13. Use of novel NIR hyperspectral imaging sensor system for sorting of recovered paper

Daniel Sandu

14. Impact of recovered paper quality on recycled pulp properties

Alina Iosip, Raluca Nicu, Florin Ciolacu, Elena Bobu

15. A new concept including the direct coupling between flotation of recovered paper and biorefinery process for packaging paper production

Constanze Seidemann, Tobias Brenner, Adrian Manoiu

16. Impact of unusable materials content from recovered paper on recycling process effectiveness.

Elena Bobu, Cristian Banarie, Paul P. Obrocea, Florin Ciolacu, Dan Gavrilescu

17. Comparative environmental impact assessment of different types of corrugated base papers

Alina Iosip, Mercedes Hortal Ramos, Antonio Dobón, Elena Bobu

18. Evaluation of potential source of raw materials/ secondary materials (recovered paper) of the paper sector in Romania and analysis of legislative frame

Constantin Chiriac, Boris Andronic, Eva Cristian, Gheorghe Cazan, Cristian Mormocea, Valentina Scarlet

Innovative processes and materials in pulp and paper making

Chairman: Prof. Dan Gavrilescu

19. Effect of residual enzyme on effluent load during biobleaching of kraft-AQ pulp of *A. Cadamba* by crude xylanases from *Coprinellus disseminatus* MLK-03

Dharm Dutt, Mohan Lal and C. H. Tyagi

20. The improvement of delignification ratio and yield in alkaline sulfite pulping

Esat Gumuskaya and Emir Erisir

21. Properties of *Brassica napus* fibers

Bogdan Marian Tofanica, Elisa Cappelletto, Klaus Mueller, Dan Gavrilescu

22. Kraft pulping of softwood using phosphonates as additives

Gheorghe Dutuc, Alexandru Botar, Dan Gavrilescu, Grigore Craciun, Adrian Catalin Puitel

23. Cellulosic fiber specialty packaging – a viable alternative for food protection and safety

Daniela Manea, Dan Gavrilescu, Mariana Ionescu, Gabriel Mustătea

24. Automatic line for producing mini-Jumbo and industrial rolls

Oriță Doru, Vlase Roxana, Dan Gavrilescu

25. Water based magnetic nano-colloids with controlled structure for applications in separation processes

Vlad Socoliuc, D.Bica, L.Vekas

26. Evaluation of mechanical and morphology modifications after artificial weathering of some LDPE/eucalyptus sawdust composites

Raluca Nicoleta Darie, Iuliana Spiridon

Innovative processes and materials in pulp and paper making

Chairman: Dr. Florin Ciolacu

27. New possibilities for recycled paper bleaching

Ivo Valchev, Petya Tsekova, Ventsislav Blyahovski and Petar Bikov

28. Reduction of pollutants in paper mill effluent by aquatic plants

Ajit K. Vidyarthi, Dharm Dutt and Jugendra S. Upadhyaya

29. The efficiencies of water soluble cross-linked cationic polymers in papermaking

Mustafa Usta and Sedat Ondaral

30. Microparticle flocculation system with cationic polyacrylamide and bentonite for PCC retention and dewatering

Sedat Ondaral, Orçun Çağlar Kurtuluş and Mustafa Usta

31. The improvement of the strength and water repellency properties of different paper by using silica/wax mixture

Meryem Ondaral, Mustafa Usta and Sedat Ondaral

32. A new coating ground calcium carbonate for enhanced paper properties

Nicușor Chiriloea

33. Synthesis and characterization of n-alkyl chitosan for papermaking application

Raluca Nicu, Mihail Lupei, Florin Ciolacu, Elena Bobu, Jacques Desbriers

34. Assessing the compatibility of composite structures based on lignocellulosic fibers with the development process of plant seedlings

Petronela Nechita, Elena Dobrin, Florin Ciolacu, Elena Bobu, Maricica Burlacu

35. Preliminary tests regarding the endogenous and exogenous factors that induce books and documents degradation

Cătălina Mihaela Talașman, Constantin Stanciu, Daniela Manea, Valentin I Moise

Innovative processes and materials in pulp and paper making

Chairman: Dr. Petronela Nechita

36. Applications of nanoparticles in the wet-end chemistry

Dan Buteică

37. Increase of paper security rate in order to prevent counterfeit and forgery

Ion Zăpodeanu, Maricica Burlacu, Gavrilă Ionel, Argentina Radu, Constantin Stanciu, Geta Cârâc, Rodica Dinică, Petrică Dumitru, Gherghina Aniculăeșei

38. Securing element with ferromagnetic microwires

M. M. Codescu, E. Manta, E. A. Patroi, W. Kappel, F. Radulescu, Ion Zăpodeanu, Maricica Burlacu, Petronela Nechita, V. Midoni

39. Study concerning the use of compost based on primary sludge from paper making

Marina Irina Merticaru

40. General aspects concerning soil and underground water pollution at pulp and paper making

Negreanu Violeta, Ieremie Rachila, Cantea Maria, Vasile Negreanu

41. Sustainable development of the pulp and paper sector by reducing energy consumptions and rising the contribution of energy from renewable resources

Florin Scarlet, Cornel Enuş-Răduca

Natural and synthetic polymers

Chairman: Dr. Diana Ciolacu

42. Hyperaccumulation of cadmium in maize plant (*Zea mays*)

Alina Stingu, Irina Stanescu, Irina Volf and Valentin I. Popa

43. Cellulose/chondroitin sulfate hydrogels as matrices for drug delivery applications

Ana-Maria Oprea, Diana Ciolacu, Lenuta Profire, Cornelia Vasile

44. FT-IR and 2D IR Correlation Spectroscopy, Carbon-13 CP/MAS solid state NMR and X-ray diffraction spectroscopy studies on wood decay by *Chaetomium globosum*

Carmen-Mihaela Popescu, Maria-Cristina Popescu, Cornelia Vasile

45. Single polyelectrolyte multilayers deposited onto silica microparticles

Florin Bucatariu, Ecaterina Stela Dragan, Gheorghe Fundueanu

46. Study regarding *in vitro* indomethacin release from a synthetic polymeric network

Loredana Elena Nita, Aurica P.Chiriac, M. T. Pintilie, Liliana Verestiuc

47. Recovery of keratin waste by thermal treatment

Mihai Brebu, Iuliana Spiridon

Posters

P1. Removal of Cu(II) ions from aqueous solutions by adsorption on chitosan

Doina Asandei, Laura Bulgariu, Elena Bobu

P2. Progress in post pulp bleaching for highest brightness

Petya Tsekova, Ivo Valchev and Ventsislav Blyahovski

P3. Comparative study of flow behaviour of starch and casein adhesives in dependence of their composition

M. Karseva, V. Lasheva, G.Jeliazkova

P4. Insulating papers – theoretical, technical and technological aspects

Maria Gavrilă, Dan Gavrilă

P5. A new concept of complex reevaluation of leather and paper wastes

Constantin Stanciu, Gabriel Zainescu

P6. Evaluation methods for the quality of electrical energy to increase energetic efficiency

Florin Scarlet, Cornel Enuş-Răduca

P7. Characteristics of tissue paper obtained in Romanian paper mills

Mihaela - Daniela Dumitran, Dan Buteică, Dan Gavrilă

P8. Influence of some consolidation parameters on the rheological properties of graphical documents

Puiu Petrea, Florin Ciolacu, Sorin Ciovică

- P9. Cationic starch in papermaking
Constantin Stanciu, Petronela Nechita
- P10. Bean husk used for *Erythrosine B* removal
Laura Carmen Apostol, Maria Gavrilescu
- P11. Prognostic tools for assessment of alternative waste management scenarios
Cristina Ghinea, Maria Gavrilescu
- P12. Estimating the environmental benefits of pollution prevention practices
Mădălina Petraru, Maria Gavrilescu
- P13. Airlift bioreactors for treatment and management of pulp and paper mill effluents
Petronela Cozma, Maria Gavrilescu
- P14. Equilibrium, thermodynamic and kinetic studies for the biosorption of aqueous cadmium(II) ions by *Saccharomyces cerevisiae*
Raluca Maria Hlihor, Mariana Diaconu, Maria Gavrilescu
- P15. I. Synthesis and characterization in solution and in solid phase of chitosan-dextran system
Carmen Rosca, Ovidiu Novac, Gabriela Lisa, Marcel Ionel Popa
- P16. II. *In vitro* controlled release of ciprofloxacin from dextran-chitosan based nanoparticles
Carmen Rosca, Ovidiu Novac, Gabriela Lisa, Marcel Ionel Popa
- P17. The environmental behavior of pentachlorophenol in Iasi area soil
Camelia Smaranda, Adrian Puițel, Theodor Măluțan, Maria Gavrilescu
- P18. Low – cost resources such as maize bran for Cu(II) ions removal
Lavinia Tofan, Carmen Paduraru, Irina Volf
- P19. The modification of cellulose properties by crosslinking with siloxanes
George Stiubianu, Maria Cazacu, Carmen Racles, Alina Nicolescu, Bogdan C. Simionescu, Stelian Vlad
- P20. Agents for wood bioprotection based by natural aromatic compounds and their complexes with copper and zinc
Iulian-Andrei Gîlcă, Adina-Mirela Căpraru, Silvia Grama, Valentin I. Popa
- P21. Transformation of polyphenolic products from biomass by some yeast species
Anca-Roxana Hainal, Ioana Ignat, Irina Volf and Valentin I. Popa
- P22. Kinetic studies of interaction between copper and lignin
Tatiana Todorciuc, Laura Bulgariu and Valentin I. Popa
- P23. Kraft pulp bleaching with polioxometalates. Laboratory trials
Crăciun Grigore, Duțuc Gheorghe, Botar Alexandru, Puițel Adrian Cătălin, Dan Gavrilescu
- P24. Equilibrium and kinetics study of lead (II) adsorption on algae waste
Marius Lupea, Laura Bulgariu, Dumitru Bulgariu, Matei Macoveanu
- P25. Natural polymeric materials used for the removal of metal ions from aqueous solutions
Laura Bulgariu, Marius Lupea, Catalin Balan, Dumitru Bulgariu, Matei Macoveanu
- P26. New geopolymers – possible models for the technology of inorganic polymers
Dumitru Bulgariu, Laura Bulgariu, Constantin Rusu
- P27. „*In situ*” generation of biocompatible copolymers - application in environmental protection
Dumitru Bulgariu, Laura Bulgariu, Nicolae Buzgar, Feodor Filipov

P28. Functionalization of celulosic textile materials dyed with reactive dyes by treatment with AgNO₃ salts

Angela Cerempei, Emil I. Muresan, Corina Malutan, Simona Dunca, Augustin Muresan

P29. Biodegradation behaviour of some poly(vinyl alcohol) systems containing biomass derivative

Raluca Nicoleta Darie, Georgeta Cazacu, Cornelia Vasile

P30. Passive biomonitoring of atmospheric pollution with heavy metals using epigeic lichens

Ionela Mezdrea Cojocareanu Pata, Catalin Balan, Matei Macoveanu

P31. Studies upon the decontamination of polluted soils with Cd and Zn in field conditions by phytoremediation method

Paula Caraiman (Cojocar), Matei Macoveanu, Ioan Cojocar

P32. Evaluation of pollution by using low - cost natural sorbent

Iulian Sandu, Ionela Mezdrea Cojocareanu Pata, Matei Macoveanu

P33. Study regarding the influence of some polyphenolic compounds on UV irradiated *Saccharomyces ellipsoideus* cultures

Ioana Petronela Bocancea, Irina Volf, Valentin I. Popa

P34. Chemically modified guar gum as a biomaterial

Gianina Dodi, Doina Hritcu, Marcel Ionel Popa

P35. Nanoparticles based on modified lignins with biocide properties

Valentin I. Popa, Adina-Mirela Căpraru, Silvia Grama, Teodor Măluțan

P36. Application of chitosan derivatives as consolidation material in the restoration and conservation of paper documents

Elena Ardelean, Raluca Nicu, Elena Bobu

P37. Novel materials based on natural polymer with medical applications

Diana Ciolacu, Georgeta Cazacu

P38. The influence of natural polyphenolic extract in plant copper bioaccumulation

Alina Stingu, Irina Volf, Valentin I. Popa

P39. Synthesis and characterization of new catalyts for lignin oxidation

Aurel Pui, Teodor Malutan, Lucia Tataru, Corina Malutan, Doina Humelnicu, Rodica Postolachi, Gabriela Carja

P40. Electrostrictive actuation on the paper material

M. Ignat, G. Hristea, G. Zarnescu, Ion Zapodeanu, Petronela Nechita

P41. Energy storage devices based nanocomposite paper

G. Hristea, M. Ignat, Petronela Nechita, Ion Zapodeanu

P42. Inclusion compounds of monochlorotriazinyl-β-cyclodextrin grafted on paper supports

Constantin Luca, Ana-Maria Grigoriu, Narcisa Vrinceanu

P43. A comparative study concerning the adsorption of gallic acid onto polymeric adsorbents with amine functional groups

Ioana Ignat, Violeta Neagu, Ion Bunia, Carmen Paduraru, Irina Volf and Valentin I. Popa