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SECOND INTERNATIONAL CONFERENCE ON BIODEGRADABLE POLYMERS AND SUSTAINABLE COMPOSITES (BIOPOL-2009)

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The Second International Conference on Biodegradable Polymers and Sustainable Composites (BIOPOL-2009) was held in the period of September 30–October 2, 2009 at the University of Alicante, Spain. Scientists from both academic and industrial laboratories who are interested in biodegradable polymers and biocomposites were encouraged to participate with the aim of exchanging up-to-date ideas on current research and new applications.

150 scientists from 16 countries (Spain, Italy, Portugal, France, UK, Holland, Belgium, Georgia, Russia, Sweden, USA, Canada, Argentina, Hungary, Greece, Czech Republic) took part in this conference and represented 65 research centers of universities, institutes and companies.

World well known scientists in the field of polymer chemistry were members of the Scientific committee of this conference: Luc Averous (Universite Louis Pasteur, Strasbourg, France), Lars Berglund (KTH, Stockholm, Sweden), Norman Billingham (University of Sussex, Brighton, UK), Giovanni Camino (Politecnico di Torino, Italy), Philippe Dubois (Universite Mons-Hainaut, Belgium), Alain Dufresne (Institut National Polytechnique Grenoble, France), Alessandro Gandini (University of Aveiro, Portugal), Sigbritt Karlsson (KTH, Stockholm, Sweden), Jose M. Kenny (Universita di Perugia, Terni, Italy), Jose M. Lagaron (IATA-CSIC, Valencia, Spain), Carmen Mijangos (ICTP-CSIC, Madrid, Spain), Inaki Mondragon (Universidad del Pais Vasco, San Sebastian, Spain), Carlos Pascoal Neto (University of Aveiro, Portugal), Kristiina Oksman (Lulea University of Technology, Sweden), Andrea Pipino (Centro Ricerche Fiat, Orbassano, Italy), David Plackett (RISO-DTU, Roskilde, Denmark), Amparo Ribes (Universidad Politecnica de Valencia, Spain), Roxana Ruseckaite (Universidad Nacional de Mar del Plata, Argentina), Julio San Roman (ICTP-CSIC, Madrid, Spain), Sabu Thomas (Mahatma Gandhi University, India).

The chairman of the Conference was Prof. Alfonso Jimenez from the University of Alicante. Carmen Bueno, Nuria Burgos, M. Carmen Garrigos, Veronica Martino, Olimpia Mas, Eduardo Paredes, Mercedes Peltzer, Marina Ramos, Raquel Sanchez, Amanda Terol, Jose Luis Todoli were members of the Organizing Committee of this conference.

The scientific programme of the conference was divided into 8 sessions. The first session included 2 invited lectures. Alessandro Gandini spoke about furan monomers and furan chemistry at the service of polymer science. The second lecture was presented by Sigbritt Karlsson and had the title “Resource and environmental aspects of sustainable biocomposites”.

The second session included 7 oral presentations which were devoted to the problems as follows: evaluation of thermal degradation and dynamic mechanical properties of PP / hemp fibres composites: fibre plasma modification; electrospun cross-linked collagen nanofibers as novel bone tissue interfaces; the plastifying effect of β-carotene in biopolyester matrices; synthesis of graft copolymer of ethylmethacrylate onto polydichlorophosphazene and its ultrasonic degradation; citric acid/starch catalysed sterification.

The third session included 1 invited lecture and 2 oral presentations. Lars Berglund in the invited lecture spoke about nanocelluloses as unique polymeric building blocks for nanostructured polymer systems. The information about PLA and PCL nanocomposites preparation and biodegradation and the information about thermal analysis applied to the characterization of degradation in soil of polylactide were discussed in the oral presentations.

The fourth session included 2 invited lectures and 2 oral presentations. The invited lectures were devoted to nano-biocomposites: agropolymer/nanoclay systems (Luc Averous), and processing and characterization of PLGA-carbon nanotube nanocomposites for bone tissue engineering (Jose M. Kenny). The oral presentations included the information about the development and characterization of nanobiocomposites based on plasticized poly(lactic acid) and organomodified montmorillonite and the information how to shift toughness of PLA into non break area and create high impact flax fibre reinforcements.

The fifth session included 5 oral presentations which were devoted to the next problems: influence of plasticization on barrier properties of poly(lactic acid); influence of recrystallization conditions on the crystallinity and barrier properties of polylactide acid (PLA) food packaging films; development of new biodegradable nanocomposites based on polylactic acid/natural rubber blends for packaging applications; nano-biocomposites based on poly(lactic acid)-poly(hydroxybutyrate) blends; polyesters from renewable resources based on furan monomers: alternative materials to aromatic counterparts.

The sixth session included 1 invited lecture and 3 oral presentations. The invited lecture was presented by Gennady E. Zaikov (Institute of Biochemical Physics Russian Academy of Sciences, Russia) and was about biodegradation and medical application of microbial poly(3-hydroxybutyrate). The problems of new ways for blending biodegradable polymers with poly(vinyl chloride), of secondary plasticizers for PVC obtained from cardanol and of improved properties of formol-phenolic adhesive by adding natural-based fillers were discussed in the oral presentations.

The seventh session of this conference included 2 invited lectures and 2 oral presentations. David Plackett in the first invited lecture spoke about nanocellulose-reinforced bioplastics – prospects for further development. Jean M. Raquez. gave information about recent development of novel (bio)polymers and related composites implemented by reactive extrusion. The oral presentations were devoted to high barrier nanocomposites of biopolyesters, proteins and polysacharides for coating and packaging applications and to starch nanoparticles for eco-efficientpackaging: influence of botanic origin.

The last eighth session included 4 oral presentations, in which the next problems were discussed: olive stone as a renewable source of biopolyols; simple and quick method of preparing highly hydrophobic cellulosic materials by vapor-phase reaction with chlorosilanes; development of a method for biodegradability evaluation on leather used in the footwear industry; chitosan as an antimicrobial agent for footwear leather components.

The two poster sessions of this conference included 70 presentations in which some particular tasks in the field of biodegradable polymers and sustainable composites were discussed. Particularly there were some posters of Russian scientists: stabilization of polymers from the influence of biological media, kinetic method of biocide efficiency estimation; diagnostics of quality and prognosing of potatoes safe storage duration; effects of lead diacetate on structure of neurotropic drug (piracetam): conformational polymorphism; application of poly-HEMA embolic agent for target delivery cytostatic drug – doxorubicin.

The next 3rd International Conference on Biodegradable Polymers and Sustainable Composites will be held in Strasbourg (France) in the last week of August 2011. Prof. Luc Averous is responsible for organization of this conference.