Events

Conference report on PLANT FIBRES AND BIOPOLYMERS FOR BIOBASED MATERIALS AND COMPOSITES APPLICATIONS, co-organized by GDR SYMBIOSE and FLOWER Project, 24-26 April 2019, Nantes, France

The ***Plant Fibres and Biopolymers for Biobased Materials and Composites Applications*** Conference (shortened as SYMBIOSE-FLOWER CONFERENCE) originated from the idea to bring together researchers with mutual interest in knowledge of cell walls, the relation between structure and performance, as well as in application solutions. The scientific event was jointly organized by GDR SYMBIOSE and the Interreg FLOWER project in Nantes, France, on 24th, 25th and 26th of April 2019.

The GDR (Group de recherche) CNRS/INRA SYMBIOSE (SYnthons et Matériaux BIOSourcés – Synthons and Biobased Materials) aims at promoting the exchanges between French laboratories (French National Centre for Scientific Research and French National Institute for Agronomic Researches) working in the biobased materials sector. The approach is to address the questions of raw materials complexity, chemical functionalisation of biobased molecules, transformation processes and the study of materials functionalities.

The FLOWER project is co-financed by the European Regional Development Fund (ERDF) under the European Cross-Border Cooperation Programme INTERREG VA France (Channel) England. This French-English partnership is composed of four academic (University of South Brittany, University of Portsmouth, University of Cambridge, French National Institute for Agronomic Researches) and four industrial partners (Teillage Vandecandelaère, EcoTechnilin, Kaïros Company, Howa-Tramico) with the objective to develop a new range of flax reinforcements for the biocomposites industry.

The first day of the assembly was dedicated to the SYMBIOSE contribution. Professor Tatiana Budtova from Mines ParisTech opened the conference with an invited talk on all-cellulose composites, demonstrating their potential in various applications. Natural polymers and biobased synthons chemistry were the central theme of the day, so the following presentations continued with various biopolymers and natural compounds extracted from plants, and biopolymers functionalization and characterization.

The second day was jointly organized by FLOWER – SYMBIOSE and covered the diversity and specificities of both biobased polymers and plant fibres for targeted applications. Professors Hélène Angellier-Coussy (University of Montpellier) and Hom Dhakal (University of Portsmouth) were the keynote speakers, presenting key achievements and bottlenecks in biocomposites for packaging materials, and recent advances of biocomposites for structural applications.

On the third day, the conference was held under the auspices of GDR SYMBIOSE and it was dedicated mostly to advanced applications of polysaccharides: active pharmaceutical ingredients, antibacterial, dialysis, reversible polymers under the action of certain stimuli. The keynote speaker of the day was Professor Thierry Delair from University of Lyon, with a contribution on polyelectrolyte complexes based on polysaccharides and derivatives. The conference ended with discussions about the future of GDR Symbiose and the need to launch new innovative approaches and to identify new fields of investigation, by promoting exchanges between CNRS, INRA and various universities or institutes.

The Nantes conference was attended by over 150 participants from 10 countries (from Europe, Africa and Canada). The conference was organized by INRA and UBS. The program included 8 sessions, with 4 keynote lectures, 27 oral contributions, and 16 posters. The sessions covered all the aspects of modern plant science – the following enumeration might be just enough to catch a glimpse of the wealth of current research and the versatility of the topics covered:

- Biomass fractionation;
- Biobased synthons chemistry;
- Biopolymers functionalisation and characterization;
- Nanobiomaterials;
- Plant biobased materials physico-chemisty/functionalities/mechanical properties;
- Plant fibres for composites applications.

The desire to reach beyond the technical exchange and promote social interaction between scientists was reflected in the opening addresses, in a friendly and cooperative atmosphere, and in several cultural and culinary experiences. The conference with its lectures, sessions and discussions – but also with its festivities,

informal talks, and friendly gatherings – definitely succeeded in nurturing an exchange between students, junior and senior scientists, cooperation in bilateral projects, and the formation of personal friendships.

The conference was a great success as a result of the high quality of the oral and poster contributions and thanks to the friendly atmosphere and the creation of a "good chemistry" among the cellulose scientists, which helped strengthen the network of scientists involved in the study of plant fibres and biopolymers.

We are looking forward to a successful continuation of this conference series and wait to see the community coming together once more to relive the vibrant atmosphere of Nantes, the hometown of science-fiction writer Jules Verne, who used gun-cotton (nitrocellulose) to "send" his men in an extraordinary voyage to the Moon and around it.

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