

Editorial

The articles included in this Special Issue of the *Journal of Renewable Materials* are a selection of those presented at the 5th International Conference on Biobased and Biodegradable Polymers (BIOPOL-2015) that was held in Donostia-San Sebastián, Spain, in October 2015. The conference, which attracted more than 250 delegates from all over the world, was organized by the University of the Basque Country, University of Alicante and the European Centre for Nanostructured Polymers (ECNP), in collaboration with many other academic and industrial partners. In total, 67 oral communications were presented and about 200 posters were displayed throughout the conference, catalyzing numerous discussions and providing visibility to the exhibited work. Moreover, the conference had the honor of hosting several distinguished scientists and three plenary lecturers gave overviews on different fields: “Nanocelluloses and Their Application in the Field of Drug Delivery” (David Plackett, University of British Columbia, Canada), “High-Performance Poly lactides: From Synthesis to Property Control” (Yoshiharu Kimura, Kyoto Institute of Technology, Japan) and “Biobased Nanocomposites: Process, Properties and Possible Applications” (Kristiina Oksman, Luleå University of Technology, Sweden).

The conference proved to be a valuable forum, bringing together researchers from academia and industry, as well as a large number of students exploring and discussing the latest trends in research and technology in the field of biobased and biodegradable raw materials, polymer and reinforcements, biopolymer blends and biocomposites. The conference covered several topics related to bioplastics, including natural polymers directly extracted from biomass like polysaccharides, proteins and bacterial polymers; thermoplastic and thermosetting bioplastics indirectly produced from biomass like poly(lactic acid) and polylactides; glyceride-based materials from vegetable oils and materials based on polyols extracted from biomass; biobased blends, biocomposites and nanobiocomposites; bioproduction, biotechnology and biodegradability; industrial applications such as biobased and/or biodegradable packaging, biobased building materials and materials for healthcare; and DOI: 10.7569/JRM.2016.634118

valorization of agro-residues and wastes for synthesis of monomers and chemicals, among others.

The first article of this issue reports that proteins extracted from non-edible components have great potential for the obtention of bioplastics and other fully renewable materials. Burgos and coworkers provided an overview of the latest developments on the extraction, production, modification and applications of fruit residues and by-products in the formation of protein-based biopolymers, in particular for the formulation of edible films.

The next two articles focus on the synthesis of polymeric systems containing raw materials derived from biomass. Cruz-Aldaco and coworkers synthesized two biobased polyols from cottonseed oil and corn oil which subsequently were used in the synthesis of polyurethanes with different isocyanates and polyol/isocyanate ratios. This work states that cottonseed and corn oils could be considered as valid alternatives for the synthesis of biobased polymeric materials. On the other hand, Phiriyawirut and coworkers successfully prepared foams by hot-press molding from biomass-based crosslinked tapioca starch and polybutylene succinate blends. It was found that crosslinking contributed to improve density and flexural properties, and reduced water absorption and water weight loss in starch foams.

The fourth article deals with the extraction of nanocellulose from *Posidonia oceanica* leaves using a combination of chemical processes. The first one aims to remove lignin and hemicellulose whereas the second one is focused on the isolation of cellulose nanocrystals by acid hydrolysis. In this way, cellulose nanocrystals with a monocrystalline rod-shaped acicular structure with 5–10 nm diameter and 200–450 nm length were successfully isolated.

The next three articles focus on composites and nanocomposites. Puglia and coworkers prepared composites based on a biodegradable poly(ϵ -caprolactone) matrix and different contents of ground cocoa bean shells (<150 μ m). The prepared composites proved to be rather successful in achieving a sufficiently strong interface and provided enhanced rigidity to the polymer. In another article, Echegaray and coworkers prepared gelatin-based bionanocomposites with

cellulose nanocrystals, montmorillonite and their combination. In this work, the authors highlight the importance of interfacial adhesion between the matrix and the nano-reinforcement in the mechanical behavior. Moreover, both nanobiocomposites showed improved barrier properties against oxygen. In the work reported by Mahendran and coworkers, helpful and interesting results from the characterization of composites based on biobased epoxy matrix resin reinforced with woven flax fibers by means of resin infusion technique are shown. The authors highlight the importance of impregnation rate and filling, fiber matrix interaction and fabric architecture in the mechanical properties.

Finally, the last article focuses on the manufacture of fiberboards through thermopressing of a coriander

cake generated during vegetable oil extraction and on the influence of the thermopressing conditions on the boards' mechanical properties, their thickness swelling and their water absorption. This work provides a helpful study for the exploitation and application of these types of residues.

We want to express our gratitude to our contributing authors for their outstanding work as well as to the scientific and local organizing committees of the conference for their contribution to the success of this event.

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