

Editorial

The articles included in this special issue of the *Journal of Renewable Materials* were all presented at the 4th International Conference on Biodegradable and Biobased Polymers (BIOPOL-2013) that was held in Rome on October 2013. The conference was organized by the Universities of Perugia and Alicante in collaboration with many other academic and industrial partners, and attracted more than 250 delegates from all over the world.

The production and consumption of polymeric materials are subject to several concerns regarding both the prevalent use of oil as a raw material source and all the constraints and regulations dealing with the management of primary and post-consumer plastic wastes. This has encouraged the search for environmentally-friendly materials based on biodegradable and/or naturally occurring polymers such as carbohydrates, lipids and proteins for use as renewable raw material sources that can be composted or biodegraded, thus promoting an environmentally-friendly waste management system.

The development of biopolymers for many real-life applications is a subject of increasing interest among numerous research groups and companies around the world. These materials are considered capable substitutions for certain synthetic thermoplastics. The reason for the rise in the number of studies on these innovative materials resides in the increasing awareness of society regarding certain environmental issues such as sustainability of consumer goods, as well as strict governmental regulations concerning the use of nonbiodegradable thermoplastics in some applications. The use of very different biopolymers, either by themselves or in most cases with the addition of different additives and reinforcements, is turning into a matter of wide research interest. In addition to the more classical approaches of using biopolyesters, starch or cellulose derivatives, the number of new natural matrices involving the use of other biopolymers, such as proteins or polysaccharides of diverse origins, is continuously increasing.

The most optimistic forecasts have indicated that the potential for the substitution of conventional synthetic polymers by biopolymers could reach 15.4

million tons by 2020 in the European Union (EU) alone (33% of the current production of plastics), and similar figures have been reported for the USA. Nevertheless, massive applications such as those for the packaging, cosmetics, building and automotive sectors, in certain cases require properties that biopolymers alone are not capable of fulfilling. This has led to increasing research in additives, blends, composites and nanocomposites with mechanical resistance, ductility, barrier properties, or hydrolysis resistance.

Therefore, this rise in research and industrial interest in biopolymers and their derivatives has been the main reason for organizing the International Conference on Biobased and Biodegradable Polymers (BIOPOL), a biannual series of conferences devoted to the presentation of updated research results on different topics concerning biopolymeric materials.

The articles in this edition of the *Journal of Renewable Materials* correspond to submissions selected from among the lecturers and posters who presented at BIOPOL-2013, whose authors were invited to contribute by the guest editors. Our main goal has been to collect and report some of the latest research on the complex processing-structure-properties relationships of biopolymers obtained from renewable resources. We hope that these articles will be of interest to many academic and industrial scientists working in the field of chemistry of polymers and composites developed for packaging, biomedical and other relevant industrial applications.

We, as guest editors, consider that these original research publications represent new insights into polymer science and we are sure that readers will enjoy this special edition of the *Journal of Renewable Materials*. We also hope that authors and readers will join us at the next conference in the BIOPOL series, to be held in Donostia-San Sebastian (Spain) in October 2015.

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