

BOOK REVIEWS

VALENTIN I. POPA, IRINA WOLF (Editors), <i>Biomass as Renewable Raw Material to Obtain Bioproducts of High-Tech Value</i> , Elsevier B.V., 2018, 474 p., ISBN: 978-0-444-63774-1 (Bogdan Marian Tofanica).....	85
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VALENTIN POPA, IRINA WOLF (Editors), *Biomass as Renewable Raw Material to Obtain Bio-products of High-Tech Value*, Elsevier B.V., 2018, 474 p., ISBN: 978-0-444-63774-1

Compared to other available materials, biomass is one of the most common and widespread resources in the world. Thus, the biomass obtained from terrestrial and aquatic sources can be used to produce different biomaterials and biofuels so necessary in a modern society.

Editors Valentin Popa and Irina Wolf have done an excellent job organizing their recently published book for understanding the current state-of-the-art of biomass processing into high-value bio-products. The coverage of the book is broad, encompassing in varying levels of detail and laying stress on biomass resources, on the processes for obtaining biofuels, on compounds with special properties, on the medical and pharmaceutical applications of polysaccharide and cellulose derivatives, on issues of bioeconomy applications. The book is divided into 12 chapters, the topics of each being carefully researched and well-documented by recognized expert authors in their field from across the world.

The introductory chapter, entitled *Biomass for Fuels and Biomaterials*, reviews the state-of-the-art on biomass resources and biorefining routes to obtain bio-products. Bioenergy, biomaterials and biochemicals are produced in gaseous, liquid, or solid forms when the biomass is treated, by different physical, chemical, biological processes, either individually or in combination. One personal conclusion of the opening chapter is that the biggest barrier in the development of a biomass industry is not the lack of know-how, but rather economic and political aspects.

The second chapter, *Microalgae as Renewable Raw Material for Bioproducts: Identification and Biochemical Composition of Microalgae from a Raceway Pond in the Netherlands*, presents a case study of the identification, characterisation, production and biorefinery of microalgae, with examples of bioproducts that can be derived from the chemical components of this source of raw materials. In order to prove the economical viability and achieve sustainable processes, extraction components were converted into coatings, surface active agents and other chemical products.

Chapter 3, *Macroalgae Biomass as Sorbent for Metal Ions*, combines commercial relevance and academic rigour to present a literature review on the potential use of seaweeds as low-cost biosorbents for the removal of heavy metals and toxic metalloids from aqueous solutions. Attention was given to physicochemical characterization, biosorption mechanisms and performance on both raw substrate and chemically modified algae biomass.

Chapter 4, *Integrated Processing of Biomass for Fine Chemicals Obtaining: Polyphenols*, describes complex and integrated processes for the fractionation and conversion of biomass. Special attention was given to polyphenols, a class of chemicals produced in small quantity, but with a high value added. For biorefinery systems, no matter what kind of raw material is used, a thorough chemical characterization of biomass has to be done, after which the process can be designed and developed to extract the valuable compounds.

Chapter 5, *Assessing the Sustainability of Biomass Use for the Production of Biofuels*, discusses the development of sustainable strategies and indicators for biofuels and bioenergy applications, and provides the methodology for the integration of these analyses in the education of future multidisciplinary decision-makers.

Chapter 6, *Biodiesel – a Green Fuel Obtained through Enzymatic Catalysis*, focuses on two essential aspects of the biodiesel production strategy, namely the appropriate feedstock and the most efficient technology. The investigations take into account the production of biodiesel in supercritical and noncatalytical processes, nonenzymatic and enzymatic transesterification.

Chapter 7, *Catalytic Approaches to the Production of Furfural and Levulinates from Lignocelluloses*, reviews the production of building blocks from different carbohydrates and lignocelluloses using various solvent and catalyst systems, then surveys their main derivatives and discusses the relative merits of each compound in the future.

Chapter 8, *Biomass Derived Polyhydroxyalkanoates: Biomedical Applications*, investigates the biosynthesis, recovery, properties and derivatives of polyhydroxyalkanoates, as well as their use in

emerging medical applications. A concluding remark is that, by combining these polymers through chemical or physical methods, with already established materials for biomedical applications, their use in medical field will be further expanded.

Chapter 9, *Biochemical Modification of Cellulosic Biomass*, provides the current knowledge and recent advances regarding the enzymatic hydrolysis of lignocellulosic biomass for its conversion into biofuels and bioproducts. The chapter evidences the challenges and the potential solutions for conversion in an economical and environmentally friendly manner.

Chapter 10, *Chemically Modified Polysaccharides with Applications in Nanomedicine*, overviews the chemical modification of some representative polysaccharides with recent application in nanomedicine and discusses the natural polymers already used in the field of nanomedicine, but also those possessing a very high potential in this regard.

Chapter 11, *Cellulose-Based Hydrogels for Medical/Pharmaceutical Applications*, evaluates the developments of cellulose-based hydrogels, with emphasis on the preparation methods, properties and possible applications. Characteristics such as the large availability of cellulose in nature, its renewability, biocompatibility, biodegradability, low cost and nontoxicity, alongside the possibility to design various formulations of composite hydrogels in different forms (microgels, nanogels, films, membranes, beads etc.) meet the demands for many medical and pharmaceutical applications (drug delivery, tissue engineering, wound dressing, water purification, etc.).

Chapter 12, *Thermoresponsive Supramolecular Hydrogels Comprising Diblock Methylcellulose Derivatives*, describes the synthetic strategies for diblock cellulose and cello-oligosaccharide derivatives with regioselective functionalization patterns. From the point of view of the structure-property relationships, fascinating functional materials were produced from cellulose, a fascinating biopolymer and sustainable raw material.

Overall, the aim of the book: to provide an integrated framework for sustained production, conversion, and utilization of biomass, was successfully achieved. This volume is an important resource for students, technologists, engineers and researchers in the world-wide biomass industry and in academic, research, government or private institutions for the years to come.

Bogdan Marian Tofanica

MICHAEL V. CONLIN, LEE JOLLIFFE (Editors), *Automobile Heritage and Tourism*, Routledge, Taylor and Francis Group, 2017, 249 p., ISBN: 978-1-138-21910-6

This book focuses on the relationship between the motoring heritage and tourism, examining a study related to automobiles, especially vintage vehicles, and the impact they had in the social and economic developments of various towns/regions through motoring heritage tourism: museums, exhibitions, car competitions and car club meetings.

The first section (Chapter 1) provides general information related to motoring heritage and its relevance in tourism, as well as a brief presentation of the volume.

The second section (containing five chapters) focuses on people's experience on motoring heritage. Chapter 2 presents the nature of automobile heritage found in four auto museums from Southern California, USA, namely: Peterson Automotive Museum; The Nevercutt Collection and Museum; Mullin Automotive Museum; The Murphy Auto Museum. The stories of Bricklin sports cars, assembled in the Canadian province New Brunswick between 1974 and 1976 (Chapter 3), and those of the DeLorean DMC-12 manufactured in Belfast, Ireland between 1981 and 1983 (Chapter 5) are similar. Both cars have been sold in USA and their production dropped in a short time, so that the factories had to be closed. Chapter 4 examines the BMW Museum (BMW Zentrum Visitors Center) and the tour of the BMW US factory in Spartanburg, South Carolina. In chapter 6 the author talks about the history of Brescia, Italy, the role of the Mille Miglia cars racing from Brescia to Rome (1,000 miles in total) and the return in the economical and touristic development of Brescia.

The 3rd section focuses on places of historical importance for automobile heritage and development of tourism. Thus, Chapter 7 examines the economic impact of vintage cars racing events, especially the London to Brighton Veteran Car Run, England, 2010. This competition is the oldest race car in the world, the first one having taken place in 1930. The next two chapters present the motoring heritage and tourism in Barbados, Caribbean Island (Chapter 8) and Sri Lanka (Chapter 9).

In the 4th section, the author discusses mainly about collections and events of automobile heritage. Chapters 10 and 12 focus on the history of car races from Victoria, Australia (Chapter 10) and on presentations of vintage cars at Amelia Island Concours d'Elegance, Florida, USA (Chapter 12), and their impact in the economic development of those areas. Chapters 11 and 13 to 15 examine automobile museums from around the world: National Holden Motor Museum (NHMM), the history of the Holden brand – which is the car brand representative of Australia (Chapter 11); museums created and maintained by car brands such as Mercedes-Benz, Harley-Davidson, Toyota and other German and American brands, open to the general public (Chapter 13); the history of Turin and the National Automobile Museum from Turin, Italy (Chapter 14) and Jordan's Royal Automobile Museum which hosts vintage cars, motorbikes, carts that belong to the royal family for over 100 years (Chapter 15).

The last section (Chapter 16) presents the future of motoring heritage in the context of tourism.

The book is addressed to all people (car enthusiasts who do or do not possess car knowledge), who love cars and wish to find information on the evolution of the automotive industry, types of cars, car racing, museums, exhibitions and equally to all those who like to travel.

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