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Nota di contenuto	The Use of Analytical Chemistry to Understand Biomass -- Qualitative and Quantitative Analysis of Lignins from Different Sources and Isolation Methods for an Application as a Biobased Chemical Resource and Polymeric Material -- Analyses of Biomass Fibers by XRD, FT-IR, and NIR -- Molecular Properties and Functions of Humic Substances and Humic-Like Substances (HULIS) from Biomass and Their Transformation Products -- Mass Spectrometry for Metabolomics and Biomass Composition Analyses -- Analyses of Biomass Products by Nuclear Magnetic Resonance Spectroscopy -- Microscopy Applied In Biomass Characterization -- Analytical Strategies Using Chromatographic Methodologies to Analyze Lignocellulosic Feedstocks and their Value-Added Compounds in Biorefinery Processes -- Chemical Analysis and Characterization of Biomass for Biorefineries -- Green Analytical Chemistry for Biomass and their Products -- Analytical Chemistry for Sustainability Measurements -- Analytics for Renewable Hydrogen -- NMR-Based Metabolomics for Plant Biomass Analysis.

This book deals with the application of techniques and methods of chemical analysis for the study of biomass and its conversion processes. It aims to fill the existing gap in the literature on this subject. The application of various techniques and analytical methods is presented straightforwardly, enabling readers to choose the most appropriate methodologies for analyzing the major classes of plant biomass and their products. Modern chemistry plays a crucial economic role in industrial activities based on biomass. There is an increasing emphasis on its application, specifically in the development of biorefineries, and the principles of green chemistry allow effective use of biomass while significantly reducing environmental impact. In this context, analytical chemistry can contribute significantly to the supply chains of biomass, be it plant or animal origin. However, biomass from plant sources presents both the greatest challenges and the highest opportunity for technical, scientific, and economic progress due to its diverse chemical constitution. Chemical analysis can be used to examine the composition of biomass, characterize its physicochemical properties, and monitor their conversion processes. This approach can enhance the quality of products derived from biomass and expand their potential applications. The quality of the biomass used determines the product quality. Therefore, reliable information about the chemical composition of the biomass to establish the best use which will influence harvest and preparation steps is essential. Accordingly, this book includes contributions from select international experts who discuss key aspects of biomass structure, their physical and chemical properties, the parameters of conversion processes, the products and by-products formation and quantification, and quality parameters.
