Record Nr. UNINA9910906199403321 Autore Vaz Jr Silvio **Titolo** The Lignin Macromolecule: A Compendium of Sustainable Technologies / / by Silvio Vaz Jr Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2024 Pubbl/distr/stampa **ISBN** 9783031755118 9783031755101 [1st ed. 2024.] Edizione Descrizione fisica 1 online resource (108 pages) SpringerBriefs in Applied Sciences and Technology, , 2191-5318 Collana Disciplina 572.56682 Soggetti Biopolymers **Biomaterials** Green chemistry Materials science Chemistry, Technical **Biochemistry** Bioorganic chemistry **Green Chemistry** Materials Science **Industrial Chemistry Bioorganic Chemistry** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Chapter 1 - Introduction to the lignin subject -- Chapter 2 - The biochemical pathways in plants -- Chapter 3 - Advanced analytical techniques for lignin -- Chapter 4 - Extraction processes -- Chapter 5 - Chemical processing and their products -- Chapter 6 - Biochemical and biological processing and their products -- Chapter 7 - Chemical and physical processing for materials and their products -- Chapter 8 -Aspects of circularity and sustainability to be addressed for the lignin uses. Sommario/riassunto This book covers lignin, a renewable source of carbonaceous material

derived from biomass, which is a subject of research, development and innovation in both academia and industry. From lignin we can obtain

chemicals (e.g., aromatics, phenols), materials (e.g., fibres, engineered plastics, modified polymers), specialties (e.g., additives as antioxidant), among other products in diverse levels of technology readiness. However, there are challenges to overcome in terms of chemical structure, industrial yields of conversion processes, and the quality of raw material in order to reach the best uses and applications according to the sustainability vision for products and processes. This book deals with the main biochemical pathways of synthesis; advanced analytical techniques; extraction strategies; chemical, biochemical, biological, and physical processing for chemicals and materials; circularity and sustainability aspects for actual and future production chains, allied to life cycle assessment and industrial ecology.