

Lignin Structural Analysis Applications In Biomaterials And Ecological Significance Biochemistry Research Trends

WHEN PEOPLE SHOULD GO TO THE BOOK STORES, SEARCH CREATION BY SHOP, SHELF BY SHELF, IT IS IN POINT OF FACT PROBLEMATIC. THIS IS WHY WE ALLOW THE BOOKS COMPILATIONS IN THIS WEBSITE. IT WILL NO QUESTION EASE YOU TO SEE GUIDE **LIGNIN STRUCTURAL ANALYSIS APPLICATIONS IN BIOMATERIALS AND ECOLOGICAL SIGNIFICANCE BIOCHEMISTRY RESEARCH TRENDS** AS YOU SUCH AS.

BY SEARCHING THE TITLE, PUBLISHER, OR AUTHORS OF GUIDE YOU TRULY WANT, YOU CAN DISCOVER THEM RAPIDLY. IN THE HOUSE, WORKPLACE, OR PERHAPS IN YOUR METHOD CAN BE ALL BEST PLACE WITHIN NET CONNECTIONS. IF YOU ASPIRATION TO DOWNLOAD AND INSTALL THE LIGNIN STRUCTURAL ANALYSIS APPLICATIONS IN BIOMATERIALS AND ECOLOGICAL SIGNIFICANCE BIOCHEMISTRY RESEARCH TRENDS, IT IS EXTREMELY EASY THEN, BACK CURRENTLY WE EXTEND THE CONNECT TO BUY AND MAKE BARGAINS TO DOWNLOAD AND INSTALL LIGNIN STRUCTURAL ANALYSIS APPLICATIONS IN BIOMATERIALS AND ECOLOGICAL SIGNIFICANCE BIOCHEMISTRY RESEARCH TRENDS CONSEQUENTLY SIMPLE!

ADVANCES IN THE STRUCTURAL ELUCIDATION AND UTILIZATION OF LIGNINS - LI SHUAI
2021-09-15

BIOMASS FOR BIOENERGY AND BIOMATERIALS - NIDHI ADLAKHA 2021-10-21
BIOMASS FOR BIOENERGY AND BIOMATERIALS PRESENTS AN OVERVIEW OF RECENT STUDIES DEVELOPED SPECIFICALLY FOR LIGNOCELLULOSE-BASED PRODUCTION OF BIOFUELS, BIOCHEMICALS, AND FUNCTIONAL MATERIALS. THE EMPHASIS IS ON USING SUSTAINABLE CHEMISTRY AND ENGINEERING TO DEVELOP INNOVATIVE MATERIALS AND FUELS FOR PRACTICAL APPLICATIONS. TECHNOLOGICAL STRATEGIES FOR THE PHYSICAL PROCESSING OR BIOLOGICAL CONVERSION OF BIOMASS FOR MATERIAL PRODUCTION ARE ALSO PRESENTED. FEATURES OFFERS A COMPREHENSIVE VIEW OF BIOMASS PROCESSING, BIOFUEL PRODUCTION, LIFE CYCLE ASSESSMENT, TECHNO-ECONOMIC ANALYSIS, AND BIOCHEMICAL AND BIOMATERIAL PRODUCTION PRESENTS DETAILS OF INNOVATIVE STRATEGIES TO PRETREAT BIOMASS HELPS READERS UNDERSTAND THE UNDERLYING METABOLIC PATHWAYS AND IDENTIFY THE BEST ENGINEERING STRATEGIES FOR THEIR NATIVE STRAIN HIGHLIGHTS DIFFERENT STRATEGIES TO MAKE BIOMATERIALS FROM BIOMASS PROVIDES INSIGHT INTO THE POTENTIAL ECONOMIC VIABILITY OF THE BIOMASS-BASED PROCESS THIS BOOK SERVES AS AN IDEAL REFERENCE FOR ACADEMIC RESEARCHERS AND ENGINEERS WORKING WITH RENEWABLE NATURAL MATERIALS, THE BIOPROCESSING OF LIGNOCELLULOSE, AND BIOFUELS. IT CAN ALSO BE USED AS A COMPREHENSIVE REFERENCE SOURCE FOR UNIVERSITY STUDENTS IN METABOLIC, CHEMICAL, AND ENVIRONMENTAL ENGINEERING.

NEW ADVANCES IN HYDROGENATION PROCESSES - MARYAM TAKHT RAVANCHI
2017-01-25

HYDROGEN IS ONE OF THE ABUNDANT ELEMENTS ON EARTH MAJORLY IN THE FORM OF WATER (H₂O) AND MAINLY AS HYDROGEN GAS (H₂). CATALYTIC HYDROGENATION IS A KEY REACTION THAT HAS VERSATILE APPLICATIONS IN DIFFERENT INDUSTRIES. THE MAIN OBJECTIVE OF THIS BOOK IS TO BRING TOGETHER VARIOUS APPLICATIONS OF HYDROGENATION THROUGH THE PERSPECTIVE OF LEADING RESEARCHERS IN THE FIELD. THIS BOOK IS INTENDED TO BE USED AS A GRADUATE-LEVEL TEXT BOOK OR AS A PRACTICAL GUIDE FOR INDUSTRIAL ENGINEERS.
DESIGN, MANUFACTURING AND APPLICATIONS OF COMPOSITES - A. D. Ngo 2010

LIGNIN-BASED MATERIALS FOR BIOMEDICAL APPLICATIONS - PATRÍCIA FIGUEIREDO
2021-07-30

LIGNIN-BASED MATERIALS FOR BIOMEDICAL APPLICATIONS: PREPARATION, CHARACTERIZATION, AND IMPLEMENTATION EXPLORES THE EMERGING AREA OF LIGNIN-BASED MATERIALS AS A PLATFORM FOR ADVANCED BIOMEDICAL APPLICATIONS, GUIDING THE READER FROM SOURCE THROUGH TO IMPLEMENTATION. THE FIRST PART OF THE BOOK INTRODUCES THE BASICS OF LIGNIN, INCLUDING EXTRACTION METHODS, CHEMICAL MODIFICATIONS, STRUCTURE AND COMPOSITION, AND PROPERTIES THAT MAKE LIGNIN SUITABLE FOR BIOMEDICAL APPLICATIONS. IN ADDITION, STRUCTURAL CHARACTERIZATION TECHNIQUES ARE DESCRIBED IN DETAIL. THE NEXT CHAPTERS FOCUS ON THE PREPARATION OF LIGNIN-BASED MATERIALS FOR BIOMEDICAL APPLICATIONS, PRESENTING METHODOLOGIES FOR LIGNIN-BASED NANOPARTICLES, HYDROGELS, AEROGELS, AND NANOFIBERS, AND PROVIDING IN-DEPTH COVERAGE OF LIGNIN-BASED MATERIALS WITH SPECIFIC PROPERTIES—INCLUDING ANTIOXIDANT PROPERTIES, UV ABSORBING CAPABILITY, ANTIMICROBIAL PROPERTIES, AND COLLOIDAL PARTICLES WITH TAILORED PROPERTIES—AND APPLICATIONS, SUCH AS DRUG AND GENE DELIVERY, AND TISSUE

ENGINEERING. FINALLY, FUTURE PERSPECTIVES AND POSSIBLE NEW APPLICATIONS ARE CONSIDERED. THIS IS AN ESSENTIAL REFERENCE FOR ALL THOSE WITH AN INTEREST IN LIGNIN-BASED MATERIALS AND THEIR BIOMEDICAL APPLICATIONS, INCLUDING RESEARCHERS AND ADVANCED STUDENTS ACROSS BIO-BASED POLYMERS, POLYMER SCIENCE, POLYMER CHEMISTRY, BIOMATERIALS, NANOTECHNOLOGY, MATERIALS SCIENCE AND ENGINEERING, DRUG DELIVERY, AND BIOMEDICAL ENGINEERING, AS WELL AS INDUSTRIAL R&D AND SCIENTISTS INVOLVED WITH BIO-BASED POLYMERS, SPECIFICALLY FOR BIOMEDICAL APPLICATIONS. UNLOCKS THE POTENTIAL OF LIGNIN-BASED MATERIALS WITH ADVANCED PROPERTIES FOR CUTTING-EDGE APPLICATIONS IN AREAS SUCH AS DRUG DELIVERY, GENE DELIVERY AND TISSUE ENGINEERING PRESENTS STATE-OF-THE-ART METHODOLOGIES USED IN THE DEVELOPMENT OF LIGNIN-BASED NANOPARTICLES, HYDROGELS, AEROGELS AND NANOFIBERS EXPLAINS THE FUNDAMENTALS OF LIGNIN, INCLUDING STRUCTURE AND COMPOSITION, EXTRACTION AND ISOLATION METHODS, TYPES AND PROPERTIES, CHEMICAL MODIFICATIONS, AND CHARACTERIZATION TECHNIQUES

ANTIMICROBIAL POLYMER-BASED MATERIALS FOR FOOD PACKAGING APPLICATIONS - Ana María Díez-Pascual 2020-06-17

ANTIMICROBIAL PACKAGING HAS RECENTLY ATTRACTED A GREAT DEAL OF INTEREST FROM THE FOOD INDUSTRY DUE TO THE BOOST IN CONSUMER DEMAND FOR MINIMALLY-PROCESSED, PRESERVATIVE-FREE PRODUCTS. ANTIMICROBIAL POLYMERIC PACKAGING SYSTEMS CAN BE CONSIDERED AN EMERGING TECHNOLOGY THAT COULD HAVE AN IMPORTANT IMPACT ON SHELF LIFE EXTENSION AND FOOD SAFETY. NOVEL POLYMERIC-BASED PACKAGING MATERIALS ARE CONTINUALLY BEING DEVELOPED. THIS BOOK COLLECTS CAREFULLY CHOSEN EXAMPLES OF THE MOST RECENT AND RELEVANT ADVANCES IN THE PREPARATION AND CHARACTERIZATION OF ANTIMICROBIAL COMPOSITES FOR FOOD PACKAGING APPLICATIONS. DIFFERENT POLYMER NANOCOMPOSITES WITH IMPROVED PACKAGING PROPERTIES ARE DISCUSSED ALONG WITH THEIR MECHANISMS OF ACTION. FURTHER, FUTURE PERSPECTIVES FOR ANTIMICROBIAL POLYMERIC NANOMATERIALS ARE PROVIDED.

INORGANIC AND ORGANIC THIN FILMS - Yu Song 2021-07-19

LEARN MORE ABOUT FOUNDATIONAL AND ADVANCED TOPICS IN POLYMER THIN FILMS AND COATINGS BESIDES SPECIES WITH THIS POWERFUL TWO-VOLUME RESOURCE THE TWO-VOLUME *INORGANIC AND ORGANIC THIN FILMS: FUNDAMENTALS, FABRICATION, AND APPLICATIONS* DELIVERS A FOUNDATIONAL RESOURCE FOR CURRENT RESEARCHERS AND COMMERCIAL USERS INVOLVED IN THE DESIGN AND FABRICATION OF THIN FILMS. THE BOOK OFFERS NEWCOMERS TO THE FIELD A THOROUGH DESCRIPTION OF NEW DESIGN THEORY, FABRICATION METHODS, AND APPLICATIONS OF ADVANCED THIN FILMS. READERS WILL DISCOVER THE PHYSICS AND CHEMISTRY UNDERLYING THE MANUFACTURE OF NEW THIN FILMS AND COATINGS IN THIS LEADING NEW RESOURCE THAT PROMISES TO BECOME A HANDBOOK FOR FUTURE APPLICATIONS OF THE TECHNOLOGY. THIS ONE-STOP REFERENCE BRINGS TOGETHER ALL IMPORTANT ASPECTS OF INORGANIC AND POLYMERIC THIN FILMS AND COATINGS, INCLUDING CONSTRUCTION, ASSEMBLY, DEPOSITION, FUNCTIONALITY, PATTERNING, AND

CHARACTERIZATION. EXPLORATIONS OF THEIR APPLICATIONS IN INDUSTRIES AS DIVERSE AS INFORMATION TECHNOLOGY, NEW ENERGY, BIOMEDICAL ENGINEERING, AEROSPACE, AND OCEANOGRAPHIC ENGINEERING ROUND OUT THIS FULSOME EXPLORATION OF ONE OF THE MOST EXCITING AND RAPIDLY DEVELOPING AREAS OF SCIENTIFIC AND INDUSTRIAL RESEARCH TODAY. READERS WILL ALSO LEARN FROM: A COMPREHENSIVE INTRODUCTION TO THE PROGRESS OF THIN FILMS AND COATINGS AS WELL AS FUNDAMENTALS IN FUNCTIONAL THIN FILMS AND COATINGS AN EXPLORATION OF MULTI-LAYERED MAGNETIC THIN FILMS FOR ELECTRON TRANSPORT CONTROL AND SIGNAL SENSING, INCLUDING GIANT MAGNETORESISTANCE, COLOSSAL MAGNETORESISTANCE, TUNNELING MAGNETORESISTANCE, AND THE QUANTUM ANOMALOUS HOLZER EFFECT AN IN TIME SUMMARY OF HIGH-QUALITY MAGNETO-OPTICS, NANOPHOTONICS, SPIN WAVES AND SPINTRONICS USING BISMUTH-SUBSTITUTED IRON GARNET THIN FILMS AS EXAMPLES A THOROUGH DISCUSSION OF TEMPLATE-ASSISTED FABRICATION OF NANOSTRUCTURE THIN FILMS FOR ULTRASENSITIVE DETECTION OF CHEMICALS AND BIOMOLECULES A TREATMENT OF BIOMASS DERIVED FUNCTIONAL FILMS AND COATINGS PERFECT FOR MATERIALS SCIENTISTS AND INORGANIC CHEMISTS, INORGANIC AND ORGANIC THIN FILMS WILL ALSO EARN A PLACE IN THE LIBRARIES OF SOLID STATE PHYSICISTS AND PHYSICAL CHEMISTS WORKING IN PRIVATE INDUSTRY, AS WELL AS POLYMER AND SURFACE CHEMISTS WHO SEEK TO IMPROVE THEIR UNDERSTANDING OF THIN FILMS AND COATINGS.

RECENT ADVANCES IN POLYPHENOL RESEARCH, VOLUME 8 - Juha-Pekka Salminen 2023-04-03

PLANT POLYPHENOLS ARE SPECIALIZED METABOLITES THAT CONSTITUTE ONE OF THE MOST COMMON AND WIDESPREAD GROUPS OF NATURAL PRODUCTS. THEY ARE ESSENTIAL PLANT COMPONENTS FOR ADAPTATION TO THE ENVIRONMENT AND POSSESS A LARGE AND DIVERSE RANGE OF BIOLOGICAL FUNCTIONS THAT PROVIDE MANY BENEFITS TO BOTH PLANTS AND HUMANS. POLYPHENOLS, FROM THEIR STRUCTURALLY SIMPLEST FORMS TO THEIR OLIGO/POLYMERIC VERSIONS (I.E. TANNINS AND LIGNINS), ARE PHYTOESTROGENS, PLANT PIGMENTS, ANTIOXIDANTS, AND STRUCTURAL COMPONENTS OF THE PLANT CELL WALL. THE INTERACTIONS BETWEEN TANNINS AND PROTEINS ARE INVOLVED IN PLANT DEFENSE AGAINST PREDATION, CAUSE ASTRINGENCY IN FOODS AND BEVERAGES, AND AFFECT THE NUTRITIONAL AND HEALTH PROPERTIES OF HUMAN AND ANIMAL FOOD PLANTS. THIS EIGHTH VOLUME OF THE HIGHLY REGARDED RECENT ADVANCES IN POLYPHENOL RESEARCH SERIES IS EDITED BY JUHA-PEKKA SALMINEN, KRISTIINA Wählön, VICTOR DE FREITAS, AND STéphane Quideau, AND BRINGS TOGETHER CHAPTERS WRITTEN BY SOME OF THE LEADING EXPERTS WORKING IN THE POLYPHENOL SCIENCES TODAY. TOPICS COVERED INCLUDE: STRUCTURE, REACTIVITY AND SYNTHESIS BIOACTIVITY AND BIOAVAILABILITY METABOLOMICS, TARGETED ANALYSIS AND BIG DATA QUALITY CONTROL & STANDARDIZATION BIOGENESIS AND FUNCTIONS IN PLANTS AND ECOSYSTEMS BIOMATERIALS & APPLIED SCIENCES DISTILLING THE MOST RECENT AND ILLUMINATING DATA AVAILABLE, THIS NEW VOLUME IS AN INVALUABLE RESOURCE FOR CHEMISTS, BIOCHEMISTS, PLANT SCIENTISTS, PHARMACOGNOSISTS AND PHARMACOLOGISTS, BIOLOGISTS, ECOLOGISTS, FOOD SCIENTISTS AND NUTRITIONISTS.

NATURAL POLYPHENOLS FROM WOOD - KUN CHENG 2021-04-01

NATURAL POLYPHENOLS FROM WOOD: TANNIN AND LIGNIN – AN INDUSTRIAL PERSPECTIVE IS A DETAILED GUIDE TO THE SOURCING AND PROCESSING OF TANNIN AND LIGNIN FOR VALUABLE ADVANCED APPLICATIONS ACROSS AREAS SUCH AS FUELS, CHEMICALS, DRUGS, AND FOOD. DRAWING ON THE LATEST ACADEMIC RESEARCH AND PATENT LITERATURE, THIS BOOK PROVIDES STRONG PRACTICAL UNDERSTANDING OF THE USE OF THESE VALUABLE MATERIALS IN NOVEL INDUSTRIAL APPLICATIONS. THIS BOOK INTRODUCES NATURAL POLYPHENOLS FROM WOOD AND THE FUNDAMENTAL ASPECTS OF CARBON MANAGEMENT WITHIN THE TREE. IN-DEPTH PRESENTATION OF EXTRACTION AND CHARACTERIZATION METHODS IS FOLLOWED BY AN EXTENSIVE COVERAGE OF PRACTICAL AND INDUSTRIAL APPLICATIONS OF WOOD POLYPHENOLS. THIS IS AN ESSENTIAL RESOURCE FOR RESEARCHERS AND ADVANCED STUDENTS WORKING WITH LIGNIN OR TANNIN, AND ACROSS BIOPOLYMER SCIENCE, BIOMASS, WOOD CHEMISTRY, PAPER, WOOD ADHESIVES, POLYMER MATERIALS, RENEWABLE RESOURCES, AND BIOTECHNOLOGY. IT ALSO SUPPORTS INDUSTRIAL R&D AND SCIENTISTS WORKING WITH WOOD POLYPHENOLS OR BIO-BASED POLYMERS. THIS BOOK RE-EVALUATES WOOD POLYPHENOLS FROM AN INDUSTRIAL PERSPECTIVE, REVEALING THE LATEST TECHNIQUES AND DRAWING ON PATENT LITERATURE. IT ADDRESSES FUNDAMENTAL ISSUES OF WOOD POLYPHENOLS, SUCH AS CARBON CYCLE, WOOD FRACTIONATION, STRUCTURE, AND PROPERTIES. IT OFFERS A COMPREHENSIVE REVIEW OF PRACTICAL APPLICATIONS, INCLUDING LIGNIN DEPOLYMERIZATION, WOOD RECONSTRUCTION, FUELS, CHEMICALS, DRUGS, AND FOOD. ADVANCEMENTS IN BIOMASS RECALCITRANCE: THE USE OF LIGNIN FOR THE PRODUCTION OF FUELS AND CHEMICALS - ARTHUR J. RAGAUSKAS 2019-01-21

LIGNOCELLULOSIC BIOMASS HAS GREAT POTENTIALS AS AN ALTERNATIVE FEEDSTOCK FOR FUELS AND CHEMICALS. FOR EFFECTIVE UTILIZATION OF BIOMASS, BIOMASS RECALCITRANCE, WHICH IS INHERENT RESISTANCE OF PLANT CELL WALLS TO BIOLOGICAL DECONSTRUCTION, NEEDS TO BE REDUCED. AMONG MANY FACTORS IN BIOMASS, LIGNIN IS SIGNIFICANTLY RELATED TO BIOMASS RECALCITRANCE. LIGNIN, A COMPLEX AROMATIC POLYMER, IS THE LARGEST NON-CARBOHYDRATE COMPONENT (15-40% DRY WEIGHT) IN MOST TERRESTRIAL PLANTS. IN NATURE, IT PROVIDES A STRUCTURAL INTEGRITY, FACILITATES WATER AND NUTRIENT TRANSPORT, AND PROTECTS PLANTS FROM MICROBIAL ATTACK. FROM A DIFFERENT ANGLE, LIGNIN SIGNIFICANTLY CONTRIBUTES TO BIOMASS RECALCITRANCE, SO IT IS NECESSARY TO REDUCE AND/OR MODIFY THE LIGNIN FOR EFFECTIVE CONVERSION OF BIOMASS. GENETIC MODIFICATIONS OF THE LIGNIN BIOSYNTHETIC PATHWAY AND LIGNIN-TARGETING PRETREATMENTS HAVE BEEN DEVELOPED TO MINIMIZE THE LIGNIN-INDUCED BIOMASS RECALCITRANCE. HIGH CARBON CONTENT OF LIGNIN ALSO RENDERS IT AN ATTRACTIVE FEEDSTOCK FOR MANY APPLICATIONS. ABOUT 100,000 TO 200,000 TONS OF LIGNIN CAN BE GENERATED PER YEAR AS A BYPRODUCT FROM CELLULOSIC ETHANOL PRODUCTION, SO VALORIZATION OF THESE LIGNINS COULD BE ONE OF KEYS FOR ACHIEVING ECONOMIC BIOREFINERY. HOWEVER, INVESTIGATIONS OF LIGNIN CONVERSION HAVE NOT BEEN ACCOMPLISHED AS THE UTILIZATION OF CARBOHYDRATES IN BIOMASS. DEPOLYMERIZATION OF

LIGNIN IS STILL CHALLENGING BECAUSE OF ITS BROAD DISTRIBUTION OF BOND STRENGTHS, RECONDENSATION OF LOW-MOLECULAR SPECIES, AND POOR PRODUCT SELECTIVITY. DIVERSE BIOLOGICAL AND THERMOCHEMICAL DEPOLYMERIZATION METHODS HAVE BEEN INVESTIGATED TO OVERCOME THESE BARRIERS. IN THIS RESEARCH TOPIC, RECENT ADVANCEMENTS IN BIOMASS RECALCITRANCE BY EFFECTIVE UTILIZATION OF LIGNIN ARE INTRODUCED.

BIOREFINERY - JUAN-RODRIGO BASTIDAS-OYANEDEL 2019-04-15

THIS BOOK DISCUSSES THE BIOREFINERY OF BIOMASS FEEDSTOCKS. IN-DEPTH CHAPTERS HIGHLIGHT THE SCIENTIFIC AND TECHNICAL ASPECTS AND PRESENT A TECHNO-ECONOMIC ANALYSIS OF SUCH SYSTEMS. BY USING A TEA APPROACH, THE AUTHORS PRESENT FEASIBLE PATHWAYS FOR CONVERSION OF BIOMASS (BOTH RESIDUAL BIOMASS, ENERGY CROPS AND ALGAE BIOMASS), SHOWING THE DIFFERENT POSSIBILITIES FOR THE PRODUCTION OF BIOCHEMICAL MATERIALS, BIOFUELS, AND FERTILIZERS. THE CONCEPTS PRESENTED IN THIS BOOK WILL LINK COMPANIES, INVESTORS, AND GOVERNMENTS BY PROVIDING A FRAMEWORK THAT WILL HELP REDUCE POLLUTANTS AND CREATE A BIOMASS RELATED ECONOMY THAT INCORPORATES THE NEWEST DEVELOPMENTS AND TECHNOLOGIES IN THE AREA.

PROGRESS IN ADHESION AND ADHESIVES, VOLUME 4 - K. L. MITTAL 2019-07-11

A SOLID COLLECTION OF INTERDISCIPLINARY REVIEW ARTICLES ON THE LATEST DEVELOPMENTS IN ADHESION SCIENCE AND ADHESIVES TECHNOLOGY WITH THE EVER-INCREASING AMOUNT OF RESEARCH BEING PUBLISHED, IT IS A HERCULEAN TASK TO BE FULLY CONVERSANT WITH THE LATEST RESEARCH DEVELOPMENTS IN ANY FIELD, AND THE ARENA OF ADHESION AND ADHESIVES IS NO EXCEPTION. THUS, TOPICAL REVIEW ARTICLES PROVIDE AN ALTERNATE AND VERY EFFICIENT WAY TO STAY ABREAST OF THE STATE-OF-THE-ART IN MANY SUBJECTS REPRESENTING THE FIELD OF ADHESION SCIENCE AND ADHESIVES. BASED ON THE SUCCESS OF THE PRECEDING VOLUMES IN THIS SERIES "PROGRESS IN ADHESION AND ADHESIVES"), THE PRESENT VOLUME COMPRISES 9 REVIEW ARTICLES PUBLISHED IN VOLUME 6 (2018) OF REVIEWS OF ADHESION AND ADHESIVES. THE SUBJECT OF THESE REVIEWS FALL INTO THE FOLLOWING GENERAL AREAS: 1. ADHESION TO WOOD AND WOOD BONDS 2. ADHESIVE JOINTS 3. ADHESION IN MICROELECTRONIC PACKAGING 4. SURFACE MODIFICATION 5. CONTACT ANGLE, WETTABILITY AND SURFACE FREE ENERGY. THE TOPICS COVERED INCLUDE: ADHESION PHENOMENA IN MICROELECTRONIC PACKAGING; ADHESIVES FOR WOOD AND LIGNOCELLULOSIC MATERIALS; ADHESION TO WOOD AND LIGNOCELLULOSIC MATERIALS; ADHESIVELY BONDED LAP JOINTS HAVING BI-ADHESIVE AND MODULUS-GRADED BOND LINES; ADHESION BETWEEN COMPOUNDED ELASTOMERS; APPLICATIONS OF CONTACT ANGLE MEASUREMENTS IN PHARMACEUTICALS AND FOODS; OXYGEN OR AMMONIA PLASMA TREATMENT OF POLYOLEFIN SURFACES; SURFACE FREE ENERGY DETERMINATION OF POWDERS AND PARTICLES; WOOD BONDS; AND DISPERSION ADHESION FORCES BETWEEN MACROSCOPIC OBJECTS.

PRODUCTION OF TOP 12 BIOCHEMICALS SELECTED BY USDOE FROM RENEWABLE RESOURCES - ANUJ K. CHANDEL 2021-10-13

PRODUCTION OF TOP 12 BIOCHEMICALS SELECTED BY USDOE FROM RENEWABLE

RESOURCES: STATUS AND INNOVATION COVERS ALL IMPORTANT TECHNOLOGICAL ASPECTS OF THE PRODUCTION OF BIOCHEMICALS FROM RENEWABLE FEEDSTOCK. ALL THE IMPORTANT TECHNOLOGICAL ASPECTS OF BIOMASS CONVERSION FOR EXAMPLE BIOMASS PRETREATMENT, ENZYMATIC HYDROLYSIS FOR CELLULOSIC SUGARS PRODUCTION FOLLOWED BY THE FERMENTATION INTO CHEMICALS AND DOWNSTREAM RECOVERY OF THE PRODUCTS IS REVIEWED. RECENT TECHNOLOGICAL ADVANCEMENTS IN SUITABLE MICROORGANISM DEVELOPMENT, BIOPROCESS ENGINEERING FOR BIOMASS CONVERSION FOR CELLULOSIC SUGARS PRODUCTION AND VARIOUS FERMENTATION STRATEGIES AND DOWNSTREAM RECOVERY OF THESE TOP 12 PRODUCTS IS PRESENTED. EACH BIO-CHEMICAL SELECTED BY US DEPARTMENT OF ENERGY I.E. ETHANOL, XYLITOL/SORBITOL, FURANS (5-HMF, 2,5-FDCA,), GLYCEROL & ITS DERIVATIVES, HYDROCARBONS) ISOPRENE, ISO-BUTADIENES AND OTHERS), LACTIC ACID, SUCCINIC ACID, 3-HYDROXY PROPIONIC ACID, LEVULINIC ACID AND BIOHYDROGEN/BIOGAS IS INCLUDED IN A SINGLE BOOK CHAPTER. IN ADDITION TO THE TECHNICAL ASPECTS OF THESE 12 BIOCHEMICALS, GENERAL TECHNOLOGICAL CHALLENGES DEALING WITH LIGNOCELLULOSE REFINING, PERSPECTIVES AND SOLUTIONS ARE ELABORATED IN THE BOOK. ALSO, LIFE CYCLE ANALYSIS, TECHNO-ECONOMIC VIABILITY, AND SUSTAINABILITY INDEX OF BIOFUELS/BIOCHEMICALS ARE COMPREHENSIVELY REVIEWED IN THE BOOK. COVERS UNIQUELY DESIGNED SCIENTIFIC AND TECHNICAL LITERATURE ON USDOE TOP LISTED BIOCHEMICALS PRODUCTION WITH CLEAR IMAGES AND TABLES IN THE CONTEXT OF BIOMASS VALORISATION INCLUDES THE CLEAR AND SIMPLISTIC ILLUSTRATION OF TECHNOLOGICAL UPDATES ON BIOMASS PROCESSING, SYSTEM BIOLOGY, MICROBIAL FERMENTATION, CATALYSIS, REGENERATION AND MONITORING OF RENEWABLE ENERGY AND CHEMICALS PRODUCTION PRESENTS FAST AND RELIABLE SOURCE OF INFORMATION ON TECHNO-ECONOMIC ANALYSIS, LIFE CYCLE ANALYSIS, TECHNOLOGICAL SCOUTING AT INDUSTRIAL SCALE ENTAILS FUNDAMENTAL ASPECTS, RECENT DEVELOPMENTS IN PRODUCTION OF RENEWABLE CHEMICALS AS BUILDING BLOCK MATERIALS FOR COMMODITY CHEMICALS PRODUCTION

BIOPOLYMERS - AKIHIRO ABE 2010-08-29

-LIGNIN STRUCTURE, PROPERTIES, AND APPLICATIONS BY H. HATAKEYAMA, T. HATAKEYAMA -TENSILE MECHANICS OF A-HELICAL COIL SPRINGS BY A. IKAI -BIOACTIVE POLYMER/HYDROXYAPATITE (NANO)COMPOSITES FOR BONE TISSUE REGENERATION BY K. PIELICHOWSKA, S. BLAZEWICZ

BIO-BASED FLAME-RETARDANT TECHNOLOGY FOR POLYMERIC MATERIALS - YUAN HU 2022-08-26

BIO-BASED FLAME RETARDANTS FOR POLYMERIC MATERIALS PROVIDES A COMPREHENSIVE OVERVIEW OF FLAME RETARDANTS DERIVED DIRECTLY AND INDIRECTLY FROM PLANT SOURCES, DRAWING ON CUTTING-EDGE RESEARCH AND COVERING PREPARATION METHODS, TESTING AND EVALUATION TECHNIQUES, ENHANCED PROPERTIES, AND END APPLICATIONS. CHAPTERS INTRODUCE BIO-BASED MATERIALS IN THE CONTEXT OF ADDITIVES FOR FLAME RETARDANCY, EXPLAINING FUNDAMENTALS AND TESTING METHODS AND ANALYZING SYNTHETIC APPROACHES AND THE POTENTIAL ADVANTAGES OF PURSUING A BIO-BASED APPROACH. THIS IS FOLLOWED

BY DETAILED COVERAGE OF BIO-BASED RETARDANTS, WITH EACH CHAPTER COVERING A SPECIFIC SOURCE AND GUIDING THE READER SYSTEMATICALLY THROUGH PREPARATION TECHNIQUES, EVALUATION METHODS, PROPERTIES AND APPLICATIONS. THROUGHOUT THE BOOK, THE LATEST PROGRESS IN THE FIELD IS CRITICALLY REVIEWED, AND THERE IS A CONTINUAL EMPHASIS ON NOVEL APPROACHES TO ACHIEVE ENHANCED PROPERTIES AND PERFORMANT MATERIALS. THIS IS AN ESSENTIAL GUIDE FOR ALL THOSE WITH AN INTEREST IN INNOVATIVE, SUSTAINABLE FLAME RETARDANT ADDITIVES FOR POLYMERIC MATERIALS, INCLUDING RESEARCHERS, SCIENTISTS, ADVANCED STUDENTS, AND MORE. EXPLAINS INNOVATIVE TECHNIQUES FOR THE PREPARATION OF BIO-BASED FLAME RETARDANT MECHANISMS, ANALYZING PROPERTIES, PERFORMANCE AND APPLICATIONS OFFERS IN-DEPTH COVERAGE OF A RANGE OF SOURCES, INCLUDING CELLULOSE, LIGNIN, CARDANOL, CHITOSAN, EUGENOL, VANILLIN, FURAN, ALGINATE AND VEGETABLE OILS PRESENTS THE LATEST ADVANCES IN THE FIELD, SERVING AS A NOVEL RESOURCE TO ADVANCED STUDENTS, RESEARCHERS AND R&D PROFESSIONALS IN ACADEMIA AND INDUSTRY

ADVANCES OF BASIC SCIENCE FOR SECOND GENERATION BIOETHANOL FROM SUGARCANE - MARCOS S. BUCKERIDGE 2017-03-10

THIS BOOK FOCUSES ON THE BASIC SCIENCE RECENTLY PRODUCED IN BRAZIL FOR THE IMPROVEMENT OF SUGARCANE AS A BIOENERGY CROP AND AS A RAW MATERIAL FOR 2ND GENERATION BIOETHANOL PRODUCTION. IT REPORTS ACHIEVEMENTS THAT HAVE BEEN ADVANCING THE SCIENCE OF CELL WALLS, ENZYMES, GENETICS, AND SUSTAINABILITY RELATED TO SUGARCANE TECHNOLOGIES AND GIVE CONTINUITY TO THE RESEARCH REPORTED IN THE "ROUTES TO CELLULOSIC ETHANOL", FROM SPRINGER. THE INTRODUCTION (CHAPTER I) EXPLAINS HOW THE NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY OF BIOETHANOL, FOUNDED IN 2008 IN BRAZIL, BECAME PART OF THE MAIN INTERNATIONAL INITIATIVES THAT STARTED TO SEARCH FOR FORMS TO USE BIOMASS FOR BIOETHANOL PRODUCTION IN BRAZIL, US AND EUROPE. PART I REPORTS THE ADVANCES IN PLANT CELL WALL COMPOSITION, STRUCTURE AND ARCHITECTURE, AND PHYSICAL CHARACTERISTICS OF SUGARCANE BIOMASS. THESE DISCOVERIES ARE OPENING THE WAY TO INCREASED EFFICIENCY OF PRETREATMENTS AND HYDROLYSIS, BEING THEREFORE IMPORTANT INFORMATION FOR 2ND GENERATION PROCESSES AS WELL AS FOR BIOREFINERY INITIATIVES. PART II FOCUSES ON THE DISCOVERY AND CHARACTERIZATION OF HYDROLASES FROM MICROORGANISMS THAT COULD BE USED IN INDUSTRIAL PROCESSES. RECENT ADVANCES IN THE SEARCH FOR HYDROLASES USING METAGENOMICS IS REPORTED. A GREAT NUMBER OF GENES AND ENZYMES FROM MICROORGANISMS HAVE BEEN DISCOVERED, AFFORDING IMPROVEMENT OF ENZYME COCKTAILS BETTER ADAPTED TO SUGARCANE BIOMASS. PART III REPORTS TWO KEY ISSUES IN THE PROCESS OF 2G ETHANOL, PENTOSE FERMENTATION AND SUGARCANE GENETICS. THESE ARE THE DISCOVERIES OF NEW YEAST SPECIES CAPABLE OF PRODUCING ETHANOL MORE EFFICIENTLY FROM XYLOSE AND THE ADVANCES MADE ON THE SUGARCANE GENETICS, A KEY ISSUE TO DESIGN VARIETIES ADAPTED TO 2G ETHANOL PRODUCTION. PART IV APPROACHES SUSTAINABILITY THROUGH TWO CHAPTERS, ONE DISCUSSING THE SUSTAINABILITY OF THE

SUGARCANE AGRICULTURAL AND ENVIRONMENTAL SYSTEM AND ANOTHER DISCUSSING HOW NATIONAL AND MAINLY INTERNATIONAL POLICIES OF BRAZIL REGARDING 2G ETHANOL PRODUCTION AFFECTED THE COUNTRY'S STRATEGIES TO ESTABLISH ITSELF AS AN INTERNATIONAL PLAYER IN RENEWABLE ENERGY AREA.

ORGANIC FERTILIZERS - MARCELO LARRAMENDY 2016-06-30

THIS BOOK, ORGANIC FERTILIZERS - FROM BASIC CONCEPTS TO APPLIED OUTCOMES, IS INTENDED TO PROVIDE AN OVERVIEW OF EMERGING RESEARCHABLE ISSUES RELATED TO THE USE OF ORGANIC FERTILIZERS THAT HIGHLIGHT RECENT RESEARCH ACTIVITIES IN APPLIED ORGANIC FERTILIZERS TOWARD A SUSTAINABLE AGRICULTURE AND ENVIRONMENT. WE AIMED TO COMPILE INFORMATION FROM A DIVERSITY OF SOURCES INTO A SINGLE VOLUME TO GIVE SOME REAL EXAMPLES EXTENDING THE CONCEPTS IN ORGANIC FERTILIZERS THAT MAY STIMULATE NEW RESEARCH IDEAS AND TRENDS IN THE RELEVANT FIELDS.

FUNGAL BIOTECHNOLOGY FOR BIOFUEL PRODUCTION - ROBERTO NASCIMENTO SILVA 2016-01-25

MYCOLOGY: CURRENT AND FUTURE DEVELOPMENTS IS A BOOK SERIES THAT BRINGS TOGETHER THE LATEST CONTRIBUTIONS TO RESEARCH ON THE BIOLOGY, GENETICS, AND INDUSTRIAL USE OF FUNGI. EACH BOOK CHAPTER IS WRITTEN BY ACADEMIC / PROFESSIONAL EXPERTS FROM AROUND THE WORLD. THE BOOK SERIES IS OF INTEREST TO MYCOLOGISTS AND ALLIED RESEARCHERS SEEKING TO GAIN NEW KNOWLEDGE PERSPECTIVES ABOUT FUNGI. THIS VOLUME OF THE BOOK SERIES FOCUSES CHIEFLY ON ADVANCES BIOFUEL PRODUCTION. TOPICS COVERED IN THIS VOLUME INCLUDE AN OVERVIEW OF BIOFUEL PRODUCTION, THE USE OF LIGNOCELLULOSES IN FUNGAL BIOFUEL PRODUCTION, FUNGAL METABOLIC ENGINEERING, BIOMASS PRETREATMENT FOR BIOFUEL REFINERIES, AND MORE. THE VOLUME ALSO CONTAINS CHAPTERS ABOUT RESEARCH ON OTHER FUNGI SUCH AS *S. CEREVISIAE*. THE REVIEWS PRESENTED IN THIS VOLUME SERVE AS A USEFUL REFERENCE FOR RESEARCHERS AND READERS INTERESTED IN LEARNING ABOUT NEW DEVELOPMENTS IN BIOFUEL PRODUCTION AT A TIME WHEN THE NEED FOR ALTERNATIVE ENERGY SOURCES IS EVER INCREASING.

HANDBOOK ON CHARACTERIZATION OF BIOMASS, BIOWASTE AND RELATED BY-PRODUCTS - ANGE NZIHOU 2020-02-17

THIS BOOK PROVIDES AUTHORITATIVE INFORMATION, TECHNIQUES AND DATA NECESSARY FOR THE APPROPRIATE UNDERSTANDING OF BIOMASS AND BIOWASTE (UNDERSTOOD AS CONTAMINATED BIOMASS) COMPOSITION AND BEHAVIOUR WHILE PROCESSED IN VARIOUS CONDITIONS AND TECHNOLOGIES. NUMEROUS TECHNIQUES FOR CHARACTERIZING BIOMASS, BIOWASTE AND BY-PRODUCT STREAMS EXIST IN LITERATURE. HOWEVER, THERE LACKS A REFERENCE BOOK WHERE THESE TECHNIQUES ARE GATHERED IN A SINGLE BOOK, ALTHOUGH SUCH INFORMATION IS IN INCREASINGLY HIGH DEMAND. THIS HANDBOOK PROVIDES A WEALTH OF CHARACTERIZATION METHODS, PROTOCOLS, STANDARDS, DATABASES AND REFERENCES RELEVANT TO VARIOUS BIOMASS, BIOWASTE MATERIALS AND BY-PRODUCTS. IT SPECIFICALLY ADDRESSES SAMPLING AND PRECONDITIONING METHODS, EXTRACTION TECHNIQUES OF ELEMENTS AND MOLECULES, AS WELL AS BIOCHEMICAL, MECHANICAL AND

THERMAL CHARACTERIZATION METHODS. FURTHERMORE, ADVANCED AND INNOVATIVE METHODS UNDER DEVELOPMENT ARE HIGHLIGHTED. THE CHARACTERIZATION WILL ALLOW THE ANALYSIS, IDENTIFICATION AND QUANTIFICATION OF MOLECULES AND SPECIES INCLUDING BIOMASS FEEDSTOCKS AND RELATED CONVERSION PRODUCTS. THE CHARACTERIZATION WILL ALSO PROVIDE INSIGHT INTO PHYSICAL, MECHANICAL AND THERMAL PROPERTIES OF BIOMASS AND BIOWASTE AS WELL AS THE RESULTING BY-PRODUCTS.

LIGNIN - MATHEUS POLETTO 2018-03-21

LIGNIN - TRENDS AND APPLICATIONS CONSISTS OF 11 CHAPTERS RELATED TO THE LIGNIN STRUCTURE, MODIFICATION, DEPOLYMERIZATION, DEGRADATION PROCESS, COMPUTATIONAL MODELING, AND APPLICATIONS. THIS IS A USEFUL BOOK FOR READERS FROM DIVERSE AREAS, SUCH AS PHYSICS, CHEMISTRY, BIOLOGY, MATERIALS SCIENCE, AND ENGINEERING. IT IS EXPECTED THAT THIS BOOK MAY EXPAND THE READER'S KNOWLEDGE ABOUT THIS COMPLEX NATURAL POLYMER.

LIGNIN CONVERSION CATALYSIS - CHAOFENG ZHANG 2022-08-15

LIGNIN CONVERSION CATALYSIS AUTHORITATIVE REFERENCE PROVIDING COMPREHENSIVE KNOWLEDGE ON THE LIGNIN CONVERSION PROCESS WITH RECENT DEVELOPMENTS OF MECHANISMS AND TECHNIQUES LIGNIN CONVERSION CATALYSIS: TRANSFORMATION TO AROMATIC CHEMICALS COVERS THE STRATEGY, CATALYSIS, AND MECHANISMS OF CLEAVING LIGNIN LINKAGES TO AROMATIC CHEMICALS AND CRUCIALLY ELABORATES ON THE SPECIFICS OF MULTIPLE ORIGINAL LIGNINS. SAMPLE TOPICS COVERED IN THE WORK INCLUDE: LIGNIN DEPOLYMERIZATION, MODELS, AND TECHNIQUES OF VARIOUS LIGNINS BY HETEROGENEOUS SUBSTRATES (SUCH AS NATIVE LIGNINS, KRAFT LIGNINS, AND ORGANOSOLV LIGNINS) CLEAVAGE METHODS FOR LIGNINS (SUCH AS OXIDATION AND HYDROGENATION) AS WELL AS THEIR MAIN PRODUCTS (SUCH AS ARENES, PHENOL, AND ACID) RELATIONSHIPS AMONG THE STRATEGY/METHOD, CATALYST, AND MECHANISM WHEN VIEWED FROM THE CLEAVAGE ORDER AND THE TYPE OF CORRESPONDING CHEMICAL BONDS COMMERCIAL COMPONENTS OF LIGNIN, A GLOBALLY AVAILABLE RAW MATERIAL WITH MANY APPLICATIONS IN DRUG DESIGN, POLYMERS, AND MORE ORGANIC CHEMISTS, POLYMER CHEMISTS, AND CHEMICAL ENGINEERS CAN USE THE VALUABLE INFORMATION CONTAINED IN LIGNIN CONVERSION CATALYSIS: TRANSFORMATION TO AROMATIC CHEMICALS TO GET UP TO DATE ON THIS NEW RAW MATERIAL AND UNDERSTAND THE VARIOUS DEVELOPMENTS THAT HAVE BEEN MADE IN THE FIELD TO MAKE IT VIABLE FOR INDUSTRIAL PURPOSES.

AN INTEGRATED APPROACH FOR ADDED-VALUE PRODUCTS FROM LIGNOCELLULOSIC BIREFINERIES - AL² RIO EG² DIO RODRIGUES 2018-10-01

THIS BOOK OFFERS THE STATE OF THE ART ON THE PROGRESS AND ACCOMPLISHMENTS OF 25 YEARS OF RESEARCH AT THE ASSOCIATE LABORATORY LSRE-LCM - LABORATORY OF SEPARATION AND REACTION ENGINEERING - LABORATORY OF CATALYSIS AND MATERIALS ON LIGNIN CONVERSION TO VALUE-ADDED PRODUCTS AND THEIR DOWNSTREAM SEPARATION. THE FIRST VALORISATION PATHWAY PRESENTED FOR LIGNIN IS ITS PARTIAL DEPOLYMERISATION BY OXIDATION FOR THE PRODUCTION OF LOW MOLECULAR WEIGHT PHENOLIC COMPOUNDS, SUCH

AS VANILLIN AND SYRINGALDEHYDE, AND THE SECOND ONE IS THE LIGNIN APPLICATION AS MACROMONOMER FOR POLYURETHANE SYNTHESIS. IN THIS BOOK, THE AUTHORS PRESENT THE INTEGRATION OF THESE TWO VALORISATION PATHWAYS AS AN EXCLUSIVE VISION OF LSRE-LCM RESULTING FROM HANDS-ON EXPERIENCE ON REACTION AND SEPARATION PROCESSES: THE INTEGRATED PROCESS FOR LIGNIN VALORISATION. IN THIS PERSPECTIVE, THE LIGNIN IS OXIDIZED TO SIMULTANEOUSLY PRODUCE SYRINGALDEHYDE AND VANILLIN, AND THE OBTAINED BY-PRODUCTS TO PRODUCE A POLYOL FOR LIGNIN-BASED POLYURETHANES, COMPLETING THE LIGNIN VALUE CHAIN. ON THE PERSPECTIVE OF PULP MILL-RELATED BIREFINERIES, A VALORISATION ROUTE FOR EUCALYPTUS BARK IS ALSO PRESENTED, FOCUSING ON LSRE-LCM EXPERIENCE ON EXTRACTION AND SEPARATION OF BIOACTIVE POLYPHENOLS, GIVING SOME INSIGHTS ABOUT FURTHER INTEGRATION OF EXTRACTED BARK ON BIREFINING OPERATIONS.

INTRODUCTION TO RENEWABLE BIOMATERIALS - Ali S. Ayoub 2017-11-13

COVERS THE ENTIRE EVOLUTIONARY SPECTRUM OF BIOMASS, FROM ITS GENETIC MODIFICATION AND HARVESTING, TO CONVERSION TECHNOLOGIES, LIFE CYCLE ANALYSIS, AND ITS VALUE TO THE CURRENT GLOBAL ECONOMY THIS ORIGINAL TEXTBOOK INTRODUCES READERS TO BIOMASS—A RENEWABLE RESOURCE DERIVED FROM FOREST, AGRICULTURE, AND ORGANIC-BASED MATERIALS—WHICH HAS ATTRACTED SIGNIFICANT ATTENTION AS A SUSTAINABLE ALTERNATIVE TO PETROCHEMICALS FOR LARGE-SCALE PRODUCTION OF FUELS, MATERIALS, AND CHEMICALS. THE CURRENT RENAISSANCE IN THE MANIPULATION AND USES OF BIOMASS HAS BEEN SO ABRUPT AND FOCUSED, THAT VERY FEW EDUCATIONAL TEXTBOOKS ACTUALLY COVER THESE TOPICS TO ANY GREAT EXTENT. THAT'S WHY THIS INTERDISCIPLINARY TEXT IS A WELCOME RESOURCE FOR THOSE SEEKING A BETTER UNDERSTANDING OF THIS NEW DISCIPLINE. IT COMBINES THE UNDERPINNING SCIENCE OF BIOMASS WITH TECHNOLOGY APPLICATIONS AND SUSTAINABILITY CONSIDERATIONS TO PROVIDE A BROAD FOCUS TO ITS READERS. INTRODUCTION TO RENEWABLE BIOMATERIALS: FIRST PRINCIPLES AND CONCEPTS CONSISTS OF EIGHT CHAPTERS ON THE FOLLOWING TOPICS: FUNDAMENTAL BIOCHEMICAL & BIOTECHNOLOGICAL PRINCIPLES; PRINCIPLES AND METHODOLOGIES CONTROLLING PLANT GROWTH AND SILVICULTURE; FUNDAMENTAL SCIENCE AND ENGINEERING CONSIDERATIONS; CRITICAL CONSIDERATIONS AND STRATEGIES FOR HARVESTING; FIRST PRINCIPLES OF PRETREATMENT; CONVERSION TECHNOLOGIES; CHARACTERIZATION METHODS AND TECHNIQUES; AND LIFE CYCLE ANALYSIS. EACH CHAPTER INCLUDES A GLOSSARY OF TERMS, TWO TO THREE PROBLEM SETS, AND BOXES TO HIGHLIGHT NOVEL DISCOVERIES AND INSTRUMENTS. CHAPTERS ALSO OFFER QUESTIONS FOR FURTHER CONSIDERATION AND SUGGESTIONS FOR FURTHER READING. DEVELOPED FROM A SUCCESSFUL USDA FUNDED COURSE, RUN BY A PARTNERSHIP OF THREE US UNIVERSITIES: BioSUCCEED - BioPRODUCTS SUSTAINABILITY, A UNIVERSITY COOPERATIVE CENTER FOR EXCELLENCE IN EDUCATION COVERS THE ENTIRE EVOLUTIONARY SPECTRUM OF BIOMASS, FROM GENETIC MODIFICATION TO LIFE CYCLE ANALYSIS PRESENTS THE KEY CHEMISTRY, BIOLOGY, TECHNOLOGY, AND SUSTAINABILITY ASPECTS OF BIOMATERIALS EDITED BY A HIGHLY

REGARDED ACADEMIC TEAM, WITH EXTENSIVE RESEARCH AND TEACHING EXPERIENCE IN THE FIELD INTRODUCTION TO RENEWABLE BIOMATERIALS: FIRST PRINCIPLES AND CONCEPTS IS AN IDEAL TEXT FOR ADVANCED ACADEMICS AND INDUSTRY PROFESSIONALS INVOLVED WITH BIOMASS AND RENEWABLE RESOURCES, BIOENERGY, BIREFINING, BIOTECHNOLOGY, MATERIALS SCIENCE, SUSTAINABLE CHEMISTRY, CHEMICAL ENGINEERING, CROP SCIENCE AND TECHNOLOGY, AGRICULTURE.

CONVERSION OF LIGNIN INTO BIO-BASED CHEMICALS AND MATERIALS - Chunbao Xu 2017-06-05

THIS BOOK PRESENTS AN OVERVIEW OF VARIOUS TYPES OF LIGNIN AND THEIR UNIQUE STRUCTURES AND PROPERTIES, AS WELL AS UTILIZATIONS OF CRUDE OR MODIFIED TECHNICAL LIGNIN FOR HIGH-VALUE BIOPRODUCTS SUCH AS LIGNIN-BASED PF RESINS/ADHESIVES, EPOXY RESINS, PF FOAMS, PU FOAMS, RUBBER REINFORCEMENT AND CARBON FIBERS AND AS DISPERSANTS IN DRILLING FLUIDS IN THE OIL AND GAS INDUSTRY. IT SUBSEQUENTLY DISCUSSES VARIOUS THERMAL/CHEMICAL MODIFICATION TECHNIQUES (PYROLYSIS, DIRECT LIQUEFACTION AND DE-POLYMERIZATION) FOR CONVERTING LIGNIN INTO OILS AND CHEMICAL FEEDSTOCKS, AND THE UTILIZATION OF CRUDE LIGNIN, LIGNIN-DERIVED OILS OR DEPOLYMERIZED LIGNINS (DLs) OF REDUCED MOLECULAR WEIGHTS AND IMPROVED REACTIVITY TO PRODUCE LIGNIN-BASED PF RESINS/ADHESIVES, PF/PU FOAMS AND EPOXY RESINS. THE BOOK WILL INTEREST AND BENEFIT A BROAD READERSHIP (GRADUATE STUDENTS, ACADEMIC RESEARCHERS, INDUSTRIAL RESEARCHERS AND PRACTITIONERS) IN VARIOUS FIELDS OF SCIENCE AND TECHNOLOGY (CHEMICAL ENGINEERING, BIOTECHNOLOGY, CHEMISTRY, MATERIAL SCIENCE, FORESTRY, ETC.). CHUNBAO (CHARLES) XU, PHD, IS CURRENTLY A PROFESSOR OF CHEMICAL ENGINEERING AND NSERC/FPINNOVATIONS INDUSTRIAL RESEARCH CHAIR IN FOREST BIREFINERY AT THE UNIVERSITY OF WESTERN ONTARIO, CANADA. FATEMEH FERDOSIAN, PHD, IS CURRENTLY A POSTDOCTORAL FELLOW AT THE UNIVERSITY OF WATERLOO, CANADA.

METHODS IN LIGNIN CHEMISTRY - Stephen Y. Lin 2012-12-06

AN UP-TO-DATE COMPILATION OF THE THEORETICAL BACKGROUND AND PRACTICAL PROCEDURES INVOLVED IN LIGNIN CHARACTERIZATION. WHENEVER POSSIBLE, THE PROCEDURES ARE PRESENTED IN SUFFICIENT DETAIL TO ENABLE THE READER TO PERFORM THE ANALYSIS SOLELY BY FOLLOWING THE STEP-BY-STEP DESCRIPTION. THE ADVANTAGES AND LIMITATIONS OF INDIVIDUAL METHODS ARE DISCUSSED AND, MORE IMPORTANTLY, ILLUSTRATED BY TYPICAL ANALYTICAL DATA IN COMPARISON TO RESULTS OBTAINED FROM OTHER METHODS. THIS HANDBOOK SERVES THE NEED OF RESEARCHERS AND OTHER PROFESSIONALS IN ACADEMIA, THE PULP AND PAPER INDUSTRY AS WELL AS ALLIED INDUSTRIES. IT IS EQUALLY USEFUL FOR THOSE WITH NO PREVIOUS EXPERIENCE IN LIGNIN OR LIGNOCELLULOSICS.

2ND SYNTHETIC BIOLOGY FORUM: SYSTEM AND SYNTHETIC BIOLOGY FOR BIOFUELS AND BIOPRODUCTS - Jean Marie Fran 2023-01-02

LIGNIN - FACHUANG LU 2014

THE USE OF BIOLOGICALLY DERIVED POLYMERS IS EMERGING AS AN IMPORTANT COMPONENT OF SUSTAINABLE ECONOMIC DEVELOPMENT. TECHNICAL LIGNINS, DERIVATIVES FROM NATURALLY OCCURRING LIGNIN POLYMERS IN WOODY PLANTS, ARE GENERATED COMMERCIALY IN LARGE QUANTITIES -- UP TO 70 MILLION TONS WORLD-WIDE ANNUALLY. BESIDES BEING BURNED AS FUELS, ONLY A SMALL PERCENTAGE OF THESE LIGNINS ARE USED FOR VARIOUS APPLICATIONS BECAUSE TECHNICAL LIGNINS PRESENT RELATIVELY UNPREDICTABLE STRUCTURAL CHARACTERISTICS AND ARE THEREFORE UNRELIABLE FEEDSTOCKS TO MAKE PRODUCTS WITH CONSISTENT AND SATISFACTORY QUALITY. OVER THE PAST TWO DECADES, THERE HAS BEEN GREAT PROGRESS IN THE RESEARCH AND COMMERCIALISATION OF LIGNIN-BASED PRODUCTS AND PROCESSES THAT ADD SIGNIFICANT VALUE TO LIGNINS. THIS BOOK PROVIDES CRITICAL REVIEWS AND THE LATEST RESEARCH RESULTS RELATING TO SELECTED FIELDS OF LIGNIN STRUCTURAL ANALYSIS AND APPLICATIONS. FEATURING THE SIGNIFICANT ADVANCES IN SELECTED TOPICS OF THE LIGNIN RESEARCH FIELD, THIS REFERENCE BOOK IS FOR COLLEGE STUDENTS AND SCIENTISTS WITH THE INTENT OF PROMOTING FURTHER RESEARCH AND INNOVATIONS IN THIS SPECIALISED FIELD.

BIOMASS-DERIVED MATERIALS FOR ENVIRONMENTAL APPLICATIONS - IOANNIS ANASTOPOULOS 2022-05-20

BIOMASS-DERIVED MATERIALS FOR ENVIRONMENTAL APPLICATIONS PRESENTS STATE-OF-THE-ART COVERAGE OF BIO-BASED MATERIALS THAT CAN BE APPLIED TO ADDRESS THE GROWING GLOBAL CONCERN OF POLLUTANT DISCHARGE IN THE ENVIRONMENT. THE BOOK EXAMINES THE PRODUCTION, CHARACTERIZATION AND APPLICATION OF BIO-BASED MATERIALS FOR REMEDIATION. ORGANIZED CLEARLY BY TYPE OF MATERIAL, THE BOOK INCLUDES DETAILS ON LIGNOCELLULOSIC MATERIALS, NATURAL CLAYS, CARBONACEOUS MATERIALS, COMPOSITES AND ADVANCED MATERIALS FROM NATURAL ORIGINS. READERS WILL FIND AN INTERDISCIPLINARY AND PRACTICAL EXAMINATION OF THESE MATERIALS AND THEIR USE IN ENVIRONMENTAL REMEDIATION THAT WILL BE VALUABLE TO ENVIRONMENTAL SCIENTISTS, MATERIALS SCIENTISTS, ENVIRONMENTAL CHEMISTS, AND ENVIRONMENTAL ENGINEERS ALIKE. HIGHLIGHTS A WIDE RANGE OF SYNTHETIC METHODOLOGIES, AS WELL AS PHYSICOCHEMICAL AND ENGINEERED FEATURES OF BIO-BASED MATERIALS FOR ENVIRONMENTAL PURPOSES PROVIDES IN-DEPTH EXAMINATION OF BIO-BASED MATERIALS AND THEIR CHARACTERISTICS AND ADVANTAGES IN ENVIRONMENTAL REMEDIATION COVERS A RANGE OF SPECIFIC MATERIALS, INCLUDING BACKGROUND INFORMATION, KEY RESULTS, CRITICAL DISCUSSIONS, CONCLUSIONS AND FUTURE PERSPECTIVES

BIOMASS AND GREEN CHEMISTRY - SP L VIO VAZ JR. 2017-11-16

THIS BOOK INVESTIGATES THE MAIN VEGETABLE BIOMASS TYPES, THEIR CHEMICAL CHARACTERISTICS AND THEIR POTENTIAL TO REPLACE OIL AS RAW MATERIAL FOR THE CHEMICAL INDUSTRY, ACCORDING TO THE PRINCIPLES OF GREEN CHEMISTRY. AUTHORS FROM DIFFERENT SCIENTIFIC AND TECHNICAL BACKGROUNDS, FROM INDUSTRY AND ACADEMIA, GIVE AN OVERVIEW OF THE STATE OF THE ART AND ONGOING DEVELOPMENTS. ASPECTS INCLUDING

BIOECONOMY, BIOREFINERIES, RENEWABLE CHEMISTRY AND SUSTAINABILITY ARE ALSO CONSIDERED, GIVEN THEIR RELEVANCE IN THIS CONTEXT. FURTHERMORE, THE BOOK REVIEWS GREEN CHEMISTRY PRINCIPLES AND THEIR RELATION TO BIOMASS, WHILE ALSO EXPLORING THE MAIN PROCESSES FOR CONVERTING BIOMASS INTO BIOPRODUCTS. THE NEED TO DEVELOP RENEWABLE FEEDSTOCK FOR THE CHEMICAL INDUSTRY TO REPLACE OIL HAS BEEN IDENTIFIED AS A MAJOR STRATEGIC CHALLENGE FOR THE 21ST CENTURY. IN THIS CONTEXT, THE USE OF DIFFERENT TYPES OF VEGETABLE BIOMASS - STARCH, LIGNOCELLULOSIC, OLEAGINOUS, SACCHARIDE AND ALGAE - CAN BE SEEN AS A VIABLE ALTERNATIVE TO THE USE OF NON-RENEWABLE, MORE EXPENSIVE RAW MATERIALS. FURTHERMORE, IT OFFERS A MODEL FOR ADDING ECONOMIC VALUE TO THE AGRO INDUSTRIAL CHAINS SUCH AS SOYBEAN, SUGARCANE, CORN AND FORESTS, AMONG OTHERS. THIS WILL IN TURN CONTRIBUTE TO THE SUSTAINABILITY OF A WIDE RANGE OF CHEMICALS, MAINLY ORGANICS AND THEIR TRANSFORMATION PROCESSES, WHICH ARE WIDELY USED BY MODERN SOCIETY.

CEREAL STRAW AS A RESOURCE FOR SUSTAINABLE BIOMATERIALS AND BIOFUELS - RUNCANG SUN 2010-01-18

MATERIALS FROM RENEWABLE RESOURCES ARE RECEIVING INCREASED ATTENTION, AS LEADING INDUSTRIES AND MANUFACTURERS ATTEMPT TO REPLACE DECLINING PETROCHEMICAL-BASED FEEDSTOCKS WITH PRODUCTS DERIVED FROM NATURAL BIOMASS, SUCH AS CEREAL STRAWS. CEREAL STRAWS ARE EXPECTED TO PLAY AN IMPORTANT ROLE IN THE SHIFT TOWARD A SUSTAINABLE ECONOMY, AND A BASIC KNOWLEDGE OF THE COMPOSITION AND STRUCTURE OF CEREAL STRAW IS THE KEY TO USING IT WISELY. *CEREAL STRAW AS A RESOURCE FOR SUSTAINABLE BIOMATERIALS AND BIOFUELS: CHEMISTRY, EXTRACTIVES, LIGNINS, HEMICELLULOSES AND CELLULOSE* PROVIDES AN INTRODUCTION TO STRAW CHEMISTRY. TOPICS DISCUSSED INCLUDE THE STRUCTURE, ULTRASTRUCTURE, AND CHEMICAL COMPOSITION OF STRAW; THE STRUCTURE AND ISOLATION OF EXTRACTIVES FROM THE STRAW; THE THREE MAIN COMPONENTS OF STRAW: CELLULOSE, HEMICELLULOSES, AND LIGNINS; AND CHEMICAL MODIFICATIONS OF STRAW FOR INDUSTRIAL APPLICATIONS. THIS BOOK WILL BE HELPFUL TO SCIENTISTS INTERESTED IN THE AREAS OF NATURAL RESOURCE MANAGEMENT, ENVIRONMENTAL CHEMISTRY, PLANT CHEMISTRY, MATERIAL SCIENCE, POLYSACCHARIDE CHEMISTRY, AND LIGNIN CHEMISTRY. IT WILL ALSO BE OF INTEREST TO ACADEMIC AND INDUSTRIAL SCIENTISTS/RESEARCHERS INTERESTED IN NOVEL APPLICATIONS OF AGRICULTURAL RESIDUES FOR INDUSTRIAL AND/OR RECYCLING TECHNOLOGIES. PROVIDES THE BASICS OF STRAW COMPOSITION AND THE STRUCTURE OF ITS CELL WALLS DETAILS THE PROCEDURES REQUIRED TO FRACTIONATE STRAW COMPONENTS TO PRODUCE CHEMICAL DERIVATIVES FROM STRAW CELLULOSE, HEMICELLULOSES, AND LIGNINS ELUCIDATES NEW TECHNIQUES FOR THE PRODUCTION OF BIODEGRADABLE MATERIALS FOR THE ENERGY SECTOR, CHEMICAL INDUSTRY, AND PULP AND PAPER BUSINESS

PRODUCTION OF BIOFUELS AND CHEMICALS FROM LIGNIN - ZHEN FANG 2016-09-28

THIS BOOK PROVIDES STATE-OF-THE-ART REVIEWS, CURRENT RESEARCH ON AND THE PROSPECTS OF LIGNIN PRODUCTION, BIOLOGICAL, THERMAL AND CHEMICAL CONVERSION

METHODS, AND LIGNIN TECHNOECONOMICS. FUNDAMENTAL TOPICS RELATED TO LIGNIN CHEMISTRY, PROPERTIES, ANALYSIS, CHARACTERIZATION, AND DEPOLYMERIZATION MECHANISMS, AS WELL AS ENZYMATIC, FUNGAL AND BACTERIAL DEGRADATION METHODS ARE COVERED. THE BOOK ALSO EXAMINES PRACTICAL TOPICS RELATED TO TECHNOLOGIES FOR LIGNIN AND ULTRA-PURE LIGNIN RECOVERY, ACTIVATED CARBON, CARBON FIBER PRODUCTION AND MATERIALS, AND ADDRESSES THE BIOLOGICAL CONVERSION OF LIGNIN WITH FUNGI, BACTERIA OR ENZYMES TO PRODUCE CHEMICALS, ALONG WITH CHEMICAL, CATALYTIC, THERMOCHEMICAL AND SOLVOLYSIS CONVERSION METHODS. LASTLY, IT PRESENTS A CASE STUDY ON PRACTICAL POLYURETHANE FOAM PRODUCTION USING LIGNIN. LIGNIN HAS A BRIGHT FUTURE AND WILL BE AN ESSENTIAL FEEDSTOCK FOR PRODUCING RENEWABLE CHEMICALS, BIOFUELS AND VALUE-ADDED PRODUCTS. OFFERING COMPREHENSIVE INFORMATION ON THIS PROMISING MATERIAL, THE BOOK REPRESENTS A VALUABLE RESOURCE FOR STUDENTS, RESEARCHERS, ACADEMICIANS AND INDUSTRIALISTS IN THE FIELD OF BIOCHEMISTRY AND ENERGY.

DESIGN FOR SUSTAINABILITY - S.M. SAPUAN 2021-03-13

DESIGN FOR SUSTAINABILITY: GREEN MATERIALS AND PROCESSES PROVIDES FUNDAMENTAL AND PRACTICAL KNOWLEDGE SURROUNDING PRODUCT DEVELOPMENT APPLICATIONS THROUGHOUT THE ENTIRE LIFECYCLE OF GREEN MATERIALS, RANGING FROM CONCEPTUAL DESIGN, MATERIAL AND MANUFACTURING PROCESS SELECTION, AND ENVIRONMENTAL LIFECYCLE ASSESSMENT. IN ADDITION, SEVERAL TOPICS COVERING RECENT ADVANCES IN THE APPLICATION OF SUSTAINABLE DESIGN WITHIN THE AUTOMOTIVE, BUILDING AND CONSTRUCTION, PACKAGING AND CONSUMER PRODUCT INDUSTRIES ARE ALSO INCLUDED IN THIS BOOK TO PROVIDE PRACTICAL EXAMPLES OF THIS PHILOSOPHY IN CURRENT APPLICATIONS. LASTLY, A SECTION ON IMPLEMENTATION OF DESIGN FOR SUSTAINABILITY IN EDUCATION IS ADDED TO AID READERS THAT WISH TO INTRODUCE THIS PHILOSOPHY TO YOUNGER STUDENTS. THIS BOOK WILL BE BENEFICIAL TO RESEARCHERS, STUDENTS IN HIGHER EDUCATION INSTITUTIONS, DESIGN PRACTITIONERS AND ENGINEERS IN PRIVATE AND PUBLIC SECTOR ORGANIZATION WITH ASPIRATIONS TO DEVELOP SUSTAINABLE PRODUCTS IN THE FUTURE. DESIGN FOR SUSTAINABILITY IS ONE OF THE PRIMARY FOCUSES IN HUMAN ADVANCEMENT NOWADAYS, WITH THE AIM OF DEVELOPING PRODUCTS AND SERVICES THAT MEET THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS. PROVIDES AN OVERVIEW ON MATERIALS AND PROCESS DESIGN FOR SUSTAINABILITY DISCUSSES THEORETICAL ASPECTS ABOUT DESIGN FOR SUSTAINABILITY INCLUDES A DISCUSSION OF THE MOST RECENT ADVANCES AND APPLICATIONS IN DESIGN FOR SUSTAINABILITY

NATURAL POLYMERS AND BIOPOLYMERS II - SYLVAIN CAILLOL 2021-05-05

BIOPOLYMERS COULD BE EITHER NATURAL POLYMERS – POLYMER NATURALLY OCCURRING IN NATURE, SUCH AS CELLULOSE OR STARCH..., OR BIOBASED POLYMERS THAT ARE ARTIFICIALLY SYNTHESIZED FROM NATURAL RESOURCES. SINCE THE LATE 1990S, THE POLYMER INDUSTRY HAS FACED TWO SERIOUS PROBLEMS: GLOBAL WARMING AND

ANTICIPATION OF LIMITATION TO THE ACCESS TO FOSSIL RESOURCES. ONE SOLUTION CONSISTS IN THE USE OF SUSTAINABLE RESOURCES INSTEAD OF FOSSIL-BASED RESOURCES. HENCE, BIOMASS FEEDSTOCKS ARE A PROMISING RESOURCE AND BIOPOLYMERS ARE ONE OF THE MOST DYNAMIC POLYMER AREA. ADDITIONALLY, BIODEGRADABILITY IS A SPECIAL FUNCTIONALITY CONFERRED TO A MATERIAL, BIO-BASED OR NOT. VERY RECENTLY, FACING THE AWARENESS OF THE VOLUMES OF PLASTIC WASTES, BIODEGRADABLE POLYMERS ARE GAINING INCREASING ATTENTION FROM THE MARKET AND INDUSTRIAL COMMUNITY. THIS SPECIAL ISSUE OF MOLECULES DEALS WITH THE CURRENT SCIENTIFIC AND INDUSTRIAL CHALLENGES OF NATURAL AND BIOBASED POLYMERS, THROUGH THE ACCESS OF NEW BIOBASED MONOMERS, IMPROVED THERMO-MECHANICAL PROPERTIES, AND BY SUBSTITUTION OF HARMFUL SUBSTANCES. THIS THEMED ISSUE CAN BE CONSIDERED AS COLLECTION OF HIGHLIGHTS WITHIN THE FIELD OF NATURAL POLYMERS AND BIOBASED POLYMERS WHICH CLEARLY DEMONSTRATE THE INCREASED INTEREST IN THIS FIELD. WE HOPE THAT THIS WILL INSPIRE RESEARCHERS TO FURTHER DEVELOP THIS AREA AND THUS CONTRIBUTE TO FUTURES MORE SUSTAINABLE SOCIETY.”

POLYMERIC BIOMATERIALS FOR HEALTHCARE APPLICATIONS - KOKKARACHEDU VARAPRASAD 2022-05-16

POLYMERIC BIOMATERIALS FOR HEALTHCARE APPLICATIONS DETAILS A BROAD RANGE OF POLYMERIC BIOMATERIALS, METHODS OF SYNTHESIS AND PREPARATION, AND THEIR VARIOUS APPLICATIONS IN HEALTHCARE AND BIOMEDICINE. THE BOOK PROVIDES A FUNDAMENTAL OVERVIEW OF POLYMERS AND PROCESSING TECHNOLOGIES TO ALLOW CLINICAL SCIENTISTS TO EXPLORE THE USE OF THESE POLYMERS IN ALTERNATIVE APPLICATIONS. A WIDE VARIETY OF HEALTHCARE APPLICATIONS ARE COVERED, INCLUDING TREATMENT FOR AUTOIMMUNE DISEASES AND BACTERIAL INFECTIONS, TISSUE ENGINEERING, GENE DELIVERY, WOUND DRESSING, AND MORE. THE BOOK PROVIDES A CORE INTRODUCTORY TEXT FOR CLINICAL AND MATERIALS SCIENTISTS NEW TO THE AREA OF POLYMERIC BIOMATERIALS. THIS BOOK WILL PROVE USEFUL TO ACADEMICS AND RESEARCHERS IN MATERIALS SCIENCE, BIOMEDICAL ENGINEERING, CLINICAL SCIENCE AND PHARMACEUTICAL SCIENCE. COVERS A BROAD RANGE OF POLYMERIC BIOMATERIALS, INCLUDING CHITOSAN, ALGINATE, CELLULOSE, COLLAGEN, SYNTHETIC CONJUGATES, AND MORE DETAILS A WIDE VARIETY OF HEALTHCARE APPLICATIONS FOR POLYMERIC BIOMATERIALS, SUCH AS ORTHOPEDIC ENGINEERING, ANTIBIOTICS, TARGETED DRUG DELIVERY, AND MORE PROVIDES A DETAILED OVERVIEW OF POLYMER PROCESSING TECHNOLOGIES AND STERILIZATION CONSIDERATIONS

LIGNIN - SWATI SHARMA 2020-04-13

THIS BOOK PRESENTS A COMPREHENSIVE OVERVIEW ON ORIGIN, STRUCTURE, PROPERTIES, MODIFICATION STRATEGIES AND APPLICATIONS OF THE BIOPOLYMER LIGNIN. IT IS ORGANIZED INTO FOUR THEMED PARTS. THE FIRST PART FOCUSES ON THE ANALYSIS AND CHARACTERIZATION OF THE SECOND MOST ABUNDANT BIOPOLYMER. THE FOLLOWING PART IS DEVOTED TO THE BIOLOGICAL ASPECTS OF LIGNIN SUCH AS BIOSYNTHESIS AND DEGRADATION. IN THE THIRD PART, CHEMICAL MODIFICATION STRATEGIES AND THE PREPARATION OF

COMPOSITES AS WELL AS NANO- AND MICROPARTICLES ARE DISCUSSED. THE FINAL PART ADDRESSES THE INDUSTRIAL APPLICATION OF LIGNIN AND ITS DERIVATIVES, AS WELL AS LIGNIN MATERIALS. THE USAGE FOR SYNTHESIS OF BIOFUELS, FINE CHEMICALS AND IN AGRICULTURE AND FOOD INDUSTRY IS COVERED. THIS BOOK IS A COMPREHENSIVE SOURCE FOR RESEARCHERS, SCIENTISTS AND ENGINEERS WORKING IN THE FIELD OF BIOPOLYMERS AS WELL AS RENEWABLE MATERIALS AND SOURCES.

LIGNIN - FACHUANG LU 2014-05-10

THE USE OF BIOLOGICALLY DERIVED POLYMERS IS EMERGING AS AN IMPORTANT COMPONENT OF SUSTAINABLE ECONOMIC DEVELOPMENT. TECHNICAL LIGNINS, DERIVATIVES FROM NATURALLY OCCURRING LIGNIN POLYMERS IN WOODY PLANTS, ARE GENERATED COMMERCIALY IN LARGE QUANTITIES - UP TO 70 MILLION TONS WORLDWIDE ANNUALLY. BESIDES BEING BURNED AS FUELS, ONLY A SMALL PERCENTAGE OF THESE LIGNINS ARE USED FOR VARIOUS APPLICATIONS BECAUSE TECHNICAL LIGNINS PRESENT RELATIVELY UNPREDICTABLE STRUCTURAL CHARACTERISTICS AND ARE THEREFORE UNRELIABLE FEEDSTOCKS TO MAKE PRODUCTS WITH CONSISTENT AND SATISFACTORY QUALITY. OVER THE PAST TWO DECADES, THERE HAS BEEN GREAT PROGRESS IN THE RESEARCH AND COMMERCIALIZATION OF LIGNIN-BASED PRODUCTS AND PROCESSES THAT ADD SIGNIFICANT VALUE TO LIGNINS. THIS BOOK PROVIDES CRITICAL REVIEWS AND THE LATEST RESEARCH RESULTS RELATING TO SELECTED FIELDS OF LIGNIN STRUCTURAL ANALYSIS AND APPLICATIONS. FEATURING THE SIGNIFICANT ADVANCES IN SELECTED TOPICS OF THE LIGNIN RESEARCH FIELD, THIS REFERENCE BOOK IS FOR COLLEGE STUDENTS AND SCIENTISTS WITH THE INTENT OF PROMOTING FURTHER RESEARCH AND INNOVATIONS IN THIS SPECIALIZED FIELD. (NOVA)

LIGNIN IN POLYMER COMPOSITES - OMAR FARUK 2015-10-24

LIGNIN IN POLYMER COMPOSITES PRESENTS THE LATEST INFORMATION ON LIGNIN, A NATURAL POLYMER DERIVED FROM RENEWABLE RESOURCES THAT HAS GREAT POTENTIAL AS A REINFORCEMENT MATERIAL IN COMPOSITES BECAUSE IT IS NON-TOXIC, INEXPENSIVE, AVAILABLE IN LARGE AMOUNTS, AND IS STARTING TO BE DEPLOYED IN VARIOUS MATERIALS APPLICATIONS DUE TO ITS ADVANTAGES OVER MORE TRADITIONAL OIL-BASED MATERIALS. THIS BOOK REVIEWS THE STATE-OF-THE-ART ON THE TOPIC AND THEIR APPLICATIONS TO COMPOSITES, INCLUDING THERMOPLASTIC, THERMOSETS, RUBBER, FOAMS, BIOPLASTICS, NANOCOMPOSITES, AND LIGNIN-BASED CARBON FIBER COMPOSITES. IN ADDITION, THE BOOK COVERS CRITICAL ASSESSMENTS ON THE ECONOMICS OF LIGNIN, INCLUDING A COST-PERFORMANCE ANALYSIS THAT DISCUSSES ITS STRENGTHS AND WEAKNESSES AS A REINFORCEMENT MATERIAL. FINALLY, THE HUGE POTENTIAL APPLICATIONS OF LIGNIN IN INDUSTRY ARE EXPLORED WITH RESPECT TO ITS LOW COST, RECYCLABLE PROPERTIES, AND FULLY BIODEGRADABLE COMPOSITES, AND THE WAY THEY APPLY TO THE AUTOMOTIVE, CONSTRUCTION, AND PACKAGING INDUSTRIES. REVIEWS THE STATE-OF-THE-ART ON THE

TOPIC AND THEIR APPLICATIONS TO COMPOSITES, INCLUDING THERMOPLASTIC, THERMOSETS, RUBBER, FOAMS, BIOPLASTICS, NANOCOMPOSITES, AND LIGNIN-BASED CARBON FIBER COMPOSITES PRESENTS THE ESSENTIAL PROCESSING AND PROPERTIES INFORMATION FOR ENGINEERS AND MATERIALS SCIENTISTS, ENABLING THE USE OF LIGNIN IN COMPOSITES PROVIDES CRITICAL INSIGHT INTO THE APPLICATIONS AND FUTURE TRENDS OF LIGNIN-BASED COMPOSITES, INCLUDING ADVANTAGES, SHORTCOMINGS, AND ECONOMICS INCLUDES A THOROUGH COVERAGE OF EXTRACTION, MODIFICATION, PROCESSING, AND APPLICATIONS OF THE MATERIAL

PLANT CELL WALL POLYSACCHARIDES AS BIOFUELS AND BIOMATERIALS - AJAYA K. BISWAL 2022-08-05

BIOMATERIALS - RAFAEL LUQUE 2016-08-22

IN TIMES OF DECLINING FOSSIL STOCKS, SCIENCE AND INDUSTRY HAVE TO FIND ALTERNATIVE RESOURCES FOR THE PRODUCTION OF FUELS AND CHEMICALS. THIS BOOK PRESENTS TECHNIQUES FOR THE UTILIZATION OF BIOMASS AND WASTE AS RAW MATERIALS FOR THE PRODUCTION OF PLATFORM MOLECULES, BIOPOLYMERS, BIOPLASTICS, AND BIOETHANOL. LATEST RESEARCH RESULTS AS WELL AS INDUSTRIAL APPLICATION THEREOF ARE DISCUSSED.

LIGNIN AND LIGNANS AS RENEWABLE RAW MATERIALS - FRANCISCO G. CALVO-FLORES 2015-12-14

AS NATURALLY OCCURRING AND ABUNDANT SOURCES OF NON-FOSSIL CARBON, LIGNIN AND LIGNANS OFFER EXCITING POSSIBILITIES AS A SOURCE OF COMMERCIALY VALUABLE PRODUCTS, MOVING AWAY FROM PETROCHEMICAL-BASED FEEDSTOCKS IN FAVOUR OF RENEWABLE RAW MATERIALS. LIGNIN CAN BE USED DIRECTLY IN FIELDS SUCH AS AGRICULTURE, LIVESTOCK, SOIL REHABILITATION, BIOREMEDIATION AND THE POLYMER INDUSTRY, OR IT CAN BE CHEMICALLY MODIFIED FOR THE FABRICATION OF SPECIALTY AND HIGH-VALUE CHEMICALS SUCH AS RESINS, ADHESIVES, FUELS AND GREASES. LIGNIN AND LIGNANS AS RENEWABLE RAW MATERIALS PRESENTS A MULTIDISCIPLINARY OVERVIEW OF THE STATE-OF-THE-ART AND FUTURE PROSPECTS OF LIGNIN AND LIGNANS. THE BOOK DISCUSSES THE ORIGIN, STRUCTURE, FUNCTION AND APPLICATIONS OF BOTH TYPES OF COMPOUNDS, DESCRIBING THE MAIN RESOURCES AND VALUES OF THESE PRODUCTS AS CARBON RAW MATERIALS. TOPICS COVERED INCLUDE: • STRUCTURE AND PHYSICOCHEMICAL PROPERTIES • LIGNIN DETECTION METHODS • BIOSYNTHESIS OF LIGNIN • ISOLATION METHODS • CHARACTERIZATION AND MODIFICATION OF LIGNINS • APPLICATIONS OF MODIFIED AND UNMODIFIED LIGNINS • LIGNANS: STRUCTURE, CHEMICAL AND BIOLOGICAL PROPERTIES • FUTURE PERSPECTIVES THIS BOOK IS A COMPREHENSIVE RESOURCE FOR RESEARCHERS, SCIENTISTS AND ENGINEERS IN ACADEMIA AND INDUSTRY WORKING ON NEW POSSIBILITIES FOR THE APPLICATION OF RENEWABLE RAW MATERIALS. FOR MORE INFORMATION ON THE WILEY SERIES IN RENEWABLE RESOURCES, VISIT WWW.WILEY.COM/GO/RRS