Characterization of biochar from fast pyrolysis and gasification systems

DOI: 10.1002/ep.10378
Environmental Progress and Sustainable Energy, 2009 , 28, 386-396.

#	Paper	IF	Citations
588	Physical and Mineral-Nutrition Properties of Sand-Based Turfgrass Root Zones Amended with Biochar. **2010**, 102, 1627-1631		140
587	The intrinsic kinetics and heats of reactions for cellulose pyrolysis and char formation. **2010**, 3, 1162-5		71
586	Review of the stability of biochar in soils: predictability of O:C molar ratios. **2010**, 1, 289-303		637
585	Charcoal: Taphonomy and significance in geology, botany and archaeology. **2010**, 291, 1-10		80
584	Molecular Analysis of Primary Vapor and Char Products during Stepwise Pyrolysis of Poplar Biomass. **2010**, 24, 5199-5209		20
583	Surface Functionality and Carbon Structures in Lignocellulosic-Derived Biochars Produced by Fast Pyrolysis. **2011**, 25, 4693-4703		176
582	Chemical Structures of Swine-Manure Chars Produced under Different Carbonization Conditions Investigated by Advanced Solid-State 13C Nuclear Magnetic Resonance (NMR) Spectroscopy **2011**, 25, 388-397		180
581	Influence of pyrolysis temperature on biochar property and function as a heavy metal sorbent in soil. **2011**, 59, 2501-10		535
580	Development of Biochar-based Catalyst for Transesterification of Canola Oil. **2011**, 25, 337-344		116
579	Advanced in situ spectroscopic techniques and their applications in environmental biogeochemistry: introduction to the special section. **2011**, 40, 659-66		21
578	Utilization of Dry Distillers Grains and Charcoal as Nitrogen Fertilizer in Corn. **2011**, 103, 1321-1328		4
577	Impact of Biochar on Earthworm Populations: A Review. **2011**, 2011, 1-12		59
576	Interactions of Anthropogenic Organic Chemicals with Natural Organic Matter and Black Carbon in Environmental Particles. **2011**, 1-50		7
575	Nitrogen and Phosphorus Availability in Biochar-Amended Soils. **2011**, 176, 218-226		158
574	Quantitative analysis of biochar in field soil. **2011**, 43, 1563-1568		41
573	Biochar effects on soil biota A review. **2011**, 43, 1812-1836		2707
572	Biochar as a strategy to sequester carbon and increase yield in durum wheat. **2011**, 34, 231-238		290

571	A life cycle assessment of advanced biofuel production from a hectare of corn. *Fuel*, **2011**, 90, 3306-3314	7.1	61
570	Reconciling apparent variability in effects of biochar amendment on soil enzyme activities by assay optimization. **2011**, 43, 296-301		268
569	Criteria to Select Biochars for Field Studies based on Biochar Chemical Properties. **2011**, 4, 312-323		197
568	Stable isotopic analysis of pyrogenic organic matter in soils by liquid chromatography-isotope-ratio mass spectrometry of benzene polycarboxylic acids. **2011**, 25, 3723-31		14
567	The forms of alkalis in the biochar produced from crop residues at different temperatures. *Bioresource Technology*, **2011**, 102, 3488-97	11	1113
566	Leading global energy and environmental transformation: Unified ASEAN biomass-based bio-energy system incorporating the clean development mechanism. **2011**, 35, 2479-2490		7
565	Residues of bioenergy production chains as soil amendments: immediate and temporal phytotoxicity. *Journal of Hazardous Materials*, **2011**, 186, 2017-25	12.8	108
564	Screening biochars for heavy metal retention in soil: role of oxygen functional groups. *Journal of Hazardous Materials*, **2011**, 190, 432-41	12.8	443
563	Influence of biochar on nitrogen fractions in a coastal plain soil. **2012**, 41, 1087-95		74
562	Biochar: a synthesis of its agronomic impact beyond carbon sequestration. **2012**, 41, 973-89		595
561	Extent of pyrolysis impacts on fast pyrolysis biochar properties. **2012**, 41, 1115-22		70
560	Nitrogen mineralisation dynamics of meat bone meal and cattle manure as affected by the application of softwood chip biochar in soil. **2012**, 103, 19-30		8
559	Pyrolysis for biochar purposes: a review to establish current knowledge gaps and research needs. **2012**, 46, 7939-54		516
558	Characterization and potential applications of solid particles produced at a biomass gasification plant. **2012**, 47, 134-144		31
557	Characterization of Wood Chars Produced at Different Temperatures Using Advanced Solid-State 13C NMR Spectroscopic Techniques. **2012**, 26, 5983-5991		106
556	A mechanistic model of fast pyrolysis of glucose-based carbohydrates to predict bio-oil composition. **2012**, 5, 9808		249
555	Imaging of mineral-enriched biochar by FTIR, Raman and SEM–EDX. **2012**, 62, 248-257		223
554	Multiple Controls on the Chemical and Physical Structure of Biochars. **2012**, 51, 3587-3597		120

553	Steam/O2 Blown Circulating Fluidized-Bed (CFB) Biomass Gasification: Characterization of Different Residual Chars and Comparison of Their Gasification Behavior to Thermogravimetric (TG)-Derived Pyrolysis Chars. **2012**, 26, 722-739		12
552	Advanced solid-state NMR characterization of marine dissolved organic matter isolated using the coupled reverse osmosis/electrodialysis method. **2012**, 46, 5806-14		51
551	High-Resolution Mass Spectrometric Characterization of Molecules on Biochar from Pyrolysis and Gasification of Switchgrass. **2012**, 26, 3803-3809		33
550	Structural characterization of gilsonite bitumen by advanced nuclear magnetic resonance spectroscopy and ultrahigh resolution mass spectrometry revealing pyrrolic and aromatic rings substituted with aliphatic chains. **2012**, 44, 21-36		29
549	Elucidating the chemical structure of pyrogenic organic matter by combining magnetic resonance, mid-infrared spectroscopy and mass spectrometry. **2012**, 51, 35-44		35
548	Pyrolysis biochar systems for recovering biodegradable materials: A life cycle carbon assessment. **2012**, 32, 859-68		79
547	Influence of pyrolysis temperature on physicochemical properties of biochar obtained from the fast pyrolysis of pitch pine (Pinus rigida). *Bioresource Technology*, **2012**, 118, 158-62	11	366
546	Surface Characterization and Classification of Slow and Fast Pyrolyzed Biochar Using Novel Methods of Pycnometry and Hyperspectral Imaging. **2012**, 32, 105-120		16
545	Chemical characterization of rice straw-derived biochar for soil amendment. **2012**, 47, 268-276		400
544	Physico-chemical characterization of biochars from vacuum pyrolysis of South African agricultural wastes for application as soil amendments. **2012**, 98, 207-213		63
543	Waste gas biofiltration: advances and limitations of current approaches in microbiology. **2012**, 46, 8542-73		63
542	Biochar: Carbon Sequestration, Land Remediation, and Impacts on Soil Microbiology. **2012**, 42, 2311-2364		116
541	Abundant and stable char residues in soils: implications for soil fertility and carbon sequestration. **2012**, 46, 9571-6		188
540	Unusual catalysts from molasses: synthesis, properties and application in obtaining biofuels from algae. **2012**, 5, 1501-12		13
539	Analytical pyrolysis of synthetic chars derived from biomass with potential agronomic application (biochar). Relationships with impacts on microbial carbon dioxide production. **2012**, 93, 77-84		67
538	Production of char from vacuum pyrolysis of South-African sugar cane bagasse and its characterization as activated carbon and biochar. **2012**, 96, 24-32		142
537	Effects of slow and fast pyrolysis biochar on soil C and N turnover dynamics. **2012**, 46, 73-79		315
536	Biochar's role as an alternative N-fertilizer: ammonia capture. **2012**, 350, 35-42		197

535	An energy-biochar chain involving biomass gasification and rice cultivation in Northern Italy. **2013**, 5, 192-201		26
534	Effects of environmental conditions on the release of phosphorus from biochar. *Chemosphere*, **2013**, 93, 2069-75	8.4	81
533	Comparison of biochars derived from wood pellets and pelletized wheat straw as replacements for peat in potting substrates. **2013**, 51, 437-443		127
532	Activated carbon from biochar: influence of its physicochemical properties on the sorption characteristics of phenanthrene. *Bioresource Technology*, **2013**, 149, 383-9	11	126
531	Can biochar and hydrochar stability be assessed with chemical methods?. **2013**, 60, 40-44		32
530	Pyrolysis of Switchgrass (Panicum virgatum L.) at Low Temperatures within N2 and CO2 Environments: Product Yield Study. *ACS Sustainable Chemistry and Engineering*, **2013**, 1, 198-204	8.3	50
529	Carbon materials from high ash biochar for supercapacitor and improvement of capacitance with HNO3 surface oxidation. **2013**, 236, 285-292		131
528	Transformation of lignocellulosic biomass during torrefaction. **2013**, 100, 199-206		135
527	Comparisons of Biochar Properties from Wood Material and Crop Residues at Different Temperatures and Residence Times. **2013**, 27, 5890-5899		154
526	Characteristics and origin of char and coke from fast and slow, catalytic and thermal pyrolysis of biomass and relevant model compounds. **2013**, 15, 3214		100
525	Biochar: Sustainable and Versatile. **2013**, 193-205		10
524	Biochar-based catalyst for simultaneous reactions of esterification and transesterification. **2013**, 207, 86-92		105
523	Spectrally edited 2D 13C-13C NMR spectra without diagonal ridge for characterizing 13C-enriched low-temperature carbon materials. **2013**, 234, 112-24		37
522	Comparison of Rice Husk and Wheat Straw: From Slow and Fast Pyrolysis to Char Combustion. **2013**, 27, 7115-7125		37
521	Biochar based solid acid catalyst hydrolyze biomass. **2013**, 1, 1174-1181		49
520	Chemical structure changes in kerogen from bituminous coal in response to dike intrusions as investigated by advanced solid-state 13C NMR spectroscopy. **2013**, 108, 53-64		56
519	Effect of pH on surface characteristics of switchgrass-derived biochars produced by fast pyrolysis. *Chemosphere*, **2013**, 90, 2623-30	8.4	31
518	Characterization of Biochars Using Advanced Solid-State 13C Nuclear Magnetic Resonance Spectroscopy. **2013**, 47-55		2

517	Biochar, Tool for Climate Change Mitigation and Soil Management. **2013**, 73-140		4
516	Chars produced by slow pyrolysis and hydrothermal carbonization vary in carbon sequestration potential and greenhouse gases emissions. **2013**, 62, 137-146		126
515	Characterization of kerogen using solid-state nuclear magnetic resonance spectroscopy: A review. **2013**, 108, 83-90		35
514	Use of chemical and physical characteristics to investigate trends in biochar feedstocks. **2013**, 61, 2196-204		259
513	Microwave and slow pyrolysis biochar□Comparison of physical and functional properties. **2013**, 100, 41-48		151
512	Fast pyrolysis of microalgae remnants in a fluidized bed reactor for bio-oil and biochar production. *Bioresource Technology*, **2013**, 127, 494-9	11	216
511	Solid-State Nuclear Magnetic Resonance Characterization of Chars Obtained from Hydrothermal Carbonization of Corncob and Miscanthus. **2013**, 27, 303-309		31
510	Effects of Biomass Feedstocks and Gasification Conditions on the Physiochemical Properties of Char. **2013**, 6, 3972-3986		123
509	Characteristics of Straw Biochar and its Influence on the Forms of Arsenic in Heavy Metal Polluted Soil. **2013**, 409-410, 133-138		6
508	Alterations in Molecular Composition of Humic Substances from Eucalypt Plantation Soils Assessed by 13C-NMR Spectroscopy. *Soil Science Society of America Journal*, **2013**, 77, 293-306	2.5	12
507	Distributed biochar and bioenergy coproduction: a regionally specific case study of environmental benefits and economic impacts. **2013**, 5, 177-191		86
506	Impact of Biochar on Organic Contaminants in Soil: A Tool for Mitigating Risk?. **2013**, 3, 349-375		66
505	The Application of Biochar in the EU: Challenges and Opportunities. **2013**, 3, 462-473		40
504	Characterization, stability, and plant effects of kiln-produced wheat straw biochar. **2013**, 42, 429-36		23
503	Characterization and Mineralization Rates of Low Temperature Peanut Hull and Pine Chip Biochars. **2013**, 3, 294-312		26
502	Characterization of Biochar from Switchgrass Carbonization. **2014**, 7, 548-567		104
501	Effects of Biochar-Amendment to Landfill Cover Soil on Microbial Methane Oxidation: Initial Results. **2014**,		7
500	Characterization of biochar from fast pyrolysis and its effect on chemical properties of the tea garden soil. **2014**, 110, 375-381		64

499	Physical and chemical characterization of biochars derived from different agricultural residues. **2014**, 11, 6613-6621		385
498	Characterization and Utilization of Char Derived from Fast Pyrolysis of Plastic Wastes. **2014**, 931-932, 849-853		3
497	Kinetics of thermal degradation of wood biomass. **2014**, 68,		5
496	Contrasting Effects of Sorghum Biochars and Sorghum Residues on Soil Chemical Changes of Coastal Plains Ultisols With Winter Wheat. **2014**, 179, 383-392		1
495	Production of Biochar and Activated Carbon via Intermediate Pyrolysis Recent Studies for Non-Woody Biomass. **2014**, 321-338		2
494	Cadmium and lead remediation using magnetic oak wood and oak bark fast pyrolysis bio-chars. **2014**, 236, 513-528		348
493	Synthesis and evaluation of biochar-derived catalysts for removal of toluene (model tar) from biomass-generated producer gas. **2014**, 66, 346-353		91
492	Carbon mineralization in two ultisols amended with different sources and particle sizes of pyrolyzed biochar. *Chemosphere*, **2014**, 103, 313-21	8.4	65
491	New approaches to measuring biochar density and porosity. **2014**, 66, 176-185		315
490	Biochar as a Substitute for Vermiculite in Potting Mix for Hybrid Poplar. **2014**, 7, 120-131		46
489	Characterization of engineered biochar for soil management. *Environmental Progress and Sustainable Energy*, **2014**, 33, 490-496	2.5	23
488	Solid state NMR study of chemical structure and hydrothermal deactivation of moderate-temperature carbon materials with acidic SO3H sites. **2014**, 74, 333-345		57
487	Organic and inorganic contaminants removal from water with biochar, a renewable, low cost and sustainable adsorbent--a critical review. *Bioresource Technology*, **2014**, 160, 191-202	11	1406
486	Production Factors Controlling the Physical Characteristics of Biochar Derived from Phytoremediation Willow for Agricultural Applications. **2014**, 7, 371-380		20
485	Effects of co-produced biochar on life cycle greenhouse gas emissions of pyrolysis-derived renewable fuels. **2014**, 8, 189-204		26
484	Quantitative solid-state 13C NMR with signal enhancement by multiple cross polarization. **2014**, 239, 44-9		195
483	Characterization and Utilization of Char Derived from Fast Pyrolysis of Plastic Wastes. **2014**, 69, 1437-1442		71
482	Soil Chemical Insights Provided through Vibrational Spectroscopy. **2014**, 126, 1-148		120

481	Simplifying pyrolysis: Using gasification to produce corn stover and wheat straw biochar for sorptive and horticultural media. **2014**, 53, 228-235		48
480	Producing energy while sequestering carbon? The relationship between biochar and agricultural productivity. **2014**, 63, 167-176		40
479	Comparative study of the pyrolysis of lignocellulose and its major components: characterization and overall distribution of their biochars and volatiles. *Bioresource Technology*, **2014**, 155, 21-7	11	60
478	Electrosorption on activated biochar: effect of thermo-chemical activation treatment on the electric double layer capacitance. **2014**, 44, 141-157		56
477	Fluoride removal from ground water using magnetic and nonmagnetic corn stover biochars. **2014**, 73, 798-808		88
476	Unintended effects of biochars on short-term plant growth in a calcareous soil. **2014**, 385, 87-105		53
475	Biochar application to soil for climate change mitigation by soil organic carbon sequestration. **2014**, 177, 651-670		114
474	Influence of molecular structure and adsorbent properties on sorption of organic compounds to a temperature series of wood chars. **2014**, 48, 4790-8		114
473	Speciation of sulfur in biochar produced from pyrolysis and gasification of oak and corn stover. **2014**, 48, 8474-80		82
472	Steam gasification of rapeseed, wood, sewage sludge and miscanthus biochars for the production of a hydrogen-rich syngas. **2014**, 69, 276-286		72
471	Experimental and Mechanistic Modeling of Fast Pyrolysis of Neat Glucose-Based Carbohydrates. 1. Experiments and Development of a Detailed Mechanistic Model. **2014**, 53, 13274-13289		133
470	Investigation on Pyrolysis of Low Lipid Microalgae Chlorella vulgaris and Dunaliella salina. **2014**, 28, 95-103		73
469	Simple One-Step Synthesis of Aromatic-Rich Materials with High Concentrations of Hydrothermally Stable Catalytic Sites, Validated by NMR. **2014**, 26, 5523-5532		11
468	Comparison of in-situ and ex-situ catalytic pyrolysis in a micro-reactor system. *Bioresource Technology*, **2014**, 173, 124-131	11	141
467	Kinetic analysis of co-pyrolysis of cellulose and polypropylene. **2014**, 117, 1441-1451		63
466	Biochar from Slow Pyrolysis of Two-Phase Olive Mill Waste: Effect of Pressure and Peak Temperature on its Potential Stability. **2014**, 28, 3271-3280		23
465	Rhizoctonia solani suppression and plant growth promotion in cucumber as affected by biochar pyrolysis temperature, feedstock and concentration. **2014**, 69, 110-118		106
464	Life cycle assessment of pyrolysis oil applications. *Biomass Conversion and Biorefinery*, **2014**, 5, 1	2.3	6

463	Biochar impact on Midwestern Mollisols and maize nutrient availability. **2014**, 230-231, 340-347		111
462	Biochar from pyrolysis of deinking paper sludge and its use in the treatment of a nickel polluted soil. **2014**, 107, 46-52		76
461	Characterization of liquid and solid product from pyrolysis of Pongamia glabra deoiled cake. *Bioresource Technology*, **2014**, 165, 336-42	11	62
460	Advances in solid-state NMR of cellulose. **2014**, 27, 176-84		110
459	Leaching characteristics of inherent inorganic nutrients in biochars from the slow and fast pyrolysis of mallee biomass. *Fuel*, **2014**, 128, 433-441	7.1	48
458	Subcritical water extraction of lipids from wet algae for biodiesel production. *Fuel*, **2014**, 133, 73-81	7.1	71
457	Experimental study on the effect of pyrolysis pressure, peak temperature, and particle size on the potential stability of vine shoots-derived biochar. *Fuel*, **2014**, 133, 163-172	7.1	57
456	Utilizing bio-char as a bio-modifier for asphalt cement: A sustainable application of bio-fuel by-product. *Fuel*, **2014**, 133, 52-62	7.1	59
455	Assessing Microbial Contributions to N2O Impacts Following Biochar Additions. **2014**, 4, 478-496		8
454	The Profiles of Mass and Heat Transfer during Pinewood Conversion. **2015**, 66, 285-288		3
453	Characterization and Surface Analysis of Commercially Available Biochars for Geoenvironmental Applications. **2015**,		2
452	Use of biochar and oxidized lignite for reconstructing functioning agronomic topsoil: Effects on soil properties in a greenhouse study. **2015**, 95, 269-285		11
451	Production and Characterization of Biochar from Agricultural By-Products: Overview and Use of Cotton Biomass Residues. **2015**, 63-86		9
450	Considerations in Biochar Characterization. **2015**, 87-100		3
449	Agricultural and Environmental Applications of Biochar: Advances and Barriers. **2015**, 495-504		4
448	Terrestrial pyrogenic carbon export to fluvial ecosystems: Lessons learned from the White Nile watershed of East Africa. **2015**, 29, 1911-1928		25
447	Variations in mineral element concentrations of poultry manure biochar obtained at different pyrolysis temperatures, and their effects on crop growth and mineral nutrition. **2015**, 31, 429-437		33
446	Design of Sustainable Biofuel Processes and Supply Chains: Challenges and Opportunities. **2015**, 3, 634-663		28

445	BIOCHAR: PYROGENIC CARBON FOR AGRICULTURAL USE - A CRITICAL REVIEW. **2015**, 39, 321-344		105
444	Characterization of biochar of pine pellet. **2015**, 122, 21-32		19
443	Effect of holding time on fuel properties of biochars prepared from the torrefaction of coffee residue. *Biomass Conversion and Biorefinery*, **2015**, 5, 209-214	2.3	7
442	Controlled Burning of Forest Detritus Altering Spectroscopic Characteristics and Chlorine Reactivity of Dissolved Organic Matter: Effects of Temperature and Oxygen Availability. **2015**, 49, 14019-27		33
441	Production and Evaluation of Physicochemical Characteristics of Paddy Husk Bio-char for its C Sequestration Applications. **2015**, 8, 1800-1809		15
440	Lead sorptive removal using magnetic and nonmagnetic fast pyrolysis energy cane biochars. **2015**, 448, 238-50		111
439	Removal of acetaminophen and naproxen by combined coagulation and adsorption using biochar: influence of combined sewer overflow components. *Environmental Science and Pollution Research*, **2015**, 22, 10058-69	5.1	46
438	Multifaceted application of crop residue biochar as a tool for sustainable agriculture: An ecological perspective. **2015**, 77, 324-347		85
437	A comparative review of biochar and hydrochar in terms of production, physico-chemical properties and applications. *Renewable and Sustainable Energy Reviews*, **2015**, 45, 359-378	16.2	788
436	Nutrient Transport in Soils Amended with Biochar: A Transient Model with Two Stationary Phases and Intraparticle Diffusion. **2015**, 54, 4123-4135		10
435	Effects of temperature and processing conditions on biochar chemical properties and their influence on soil C and N transformations. **2015**, 83, 19-28		126
434	Application of biochar for the removal of pollutants from aqueous solutions. *Chemosphere*, **2015**, 125, 70-85	8.4	989
433	Effect of biochar amendment on PAH dissipation and indigenous degradation bacteria in contaminated soil. **2015**, 15, 313-322		43
432	High resolution solid state 2D NMR analysis of biomass and biochar. **2015**, 87, 843-7		38
431	Chemical structural properties of South African bituminous coals: Insights from wide angle XRD carbon fraction analysis, ATR FTIR, solid state 13 C NMR, and HRTEM techniques. *Fuel*, **2015**, 158, 779-792	7.1	182
430	Dissolved Phosphorus Speciation of Flash Carbonization, Slow Pyrolysis, and Fast Pyrolysis Biochars. *ACS Sustainable Chemistry and Engineering*, **2015**, 3, 1642-1649	8.3	63
429	Cascading microalgae biorefinery: Fast pyrolysis of Dunaliella tertiolecta lipid extracted-residue. **2015**, 11, 184-193		58
428	Investigation on the Physical and Chemical Properties of Hydrochar and Its Derived Pyrolysis Char for Their Potential Application: Influence of Hydrothermal Carbonization Conditions. **2015**, 29, 5222-5230		45

427	Life Cycle Assessment of Biochar versus Metal Catalysts Used in Syngas Cleaning. **2015**, 8, 621-644		17
426	Pattern of pore water nutrients in planted and non-planted soilless substrates as affected by the addition of biochars from wood gasification. **2015**, 51, 625-635		22
425	Biochar from Pine and Birch Morphology and Pore Structure Change by Treatment in Biofilter. **2015**, 226, 1		29
424	Pyrolysis of hornbeam shell (Carpinus betulus L.) in a fixed bed reactor: Characterization of bio-oil and bio-char. *Fuel*, **2015**, 150, 672-678	7.1	97
423	Esterification of glycerol over a solid acid biochar catalyst derived from waste biomass. *RSC Advances*, **2015**, 5, 44550-44556	3.7	31
422	Influence of Carbonization Methods on the Aromaticity of Pyrogenic Dissolved Organic Carbon. **2015**, 29, 2503-2513		20
421	Producing pipeline-quality biomethane via anaerobic digestion of sludge amended with corn stover biochar with in-situ CO2 removal. **2015**, 158, 300-309		174
420	Development of Biochar-Based Functional Materials: Toward a Sustainable Platform Carbon Material. **2015**, 115, 12251-85		792
419	Characterization of biochars produced from seven biomasses grown in three different climate zones. **2015**, 34, 592-600		15
418	Feeding Biochar to Cows: An Innovative Solution for Improving Soil Fertility and Farm Productivity. **2015**, 25, 666-679		56
417	Anion exchange capacity of biochar. **2015**, 17, 4628-4636		125
416	Physical and chemical characterization of waste wood derived biochars. **2015**, 36, 256-68		220
415	The impact of biochars on sorption and biodegradation of polycyclic aromatic hydrocarbons in soils--a review. *Environmental Science and Pollution Research*, **2015**, 22, 3314-41	5.1	83
414	Aromaticity and degree of aromatic condensation of char. **2015**, 78, 135-143		150
413	Sorptive removal of salicylic acid and ibuprofen from aqueous solutions using pine wood fast pyrolysis biochar. **2015**, 265, 219-227		214
412	Physical properties and reactivity of char obtained from downdraft gasification of sorghum and eastern red cedar. *Fuel*, **2015**, 143, 383-389	7.1	8
411	Kinetics investigation on the combustion of biochar in O2/CO2 atmosphere. *Environmental Progress and Sustainable Energy*, **2015**, 34, 923-932	2.5	25
410	Gasification biochar as a valuable by-product for carbon sequestration and soil amendment. **2015**, 72, 300-308		123

409	Recent advances in utilization of biochar. *Renewable and Sustainable Energy Reviews*, **2015**, 42, 1055-1064	6.2	466
408	Characterization of chemical, physical, structural and morphological properties of biochars from biowastes produced at different temperatures. **2015**, 15, 792-804		79
407	Biochar in thermal and thermochemical biorefineries. Production of biochar as a coproduct. **2016**, 655-671		4
406	An Innovative Agro-Forestry Supply Chain for Residual Biomass: Physicochemical Characterisation of Biochar from Olive and Hazelnut Pellets. **2016**, 9, 526		33
405	Carbon Abatement and Emissions Associated with the Gasification of Walnut Shells for Bioenergy and Biochar Production. **2016**, 11, e0150837		11
404	Influence of Pyrolysis Temperature on Physico-Chemical Properties of Corn Stover (Zea mays L.) Biochar and Feasibility for Carbon Capture and Energy Balance. **2016**, 11, e0156894		129
403	The Role of Biochar Production in Sustainable Development in Thailand, Lao PDR and Cambodia. 266-288		1
402	Characterization of biomass char formation investigated by advanced solid state NMR. **2016**, 108, 165-177		42
401	Gasification reactor engineering approach to understanding the formation of biochar properties. **2016**, 472, 20150841		12
400	Feedstock and Production Parameters. **2016**, 41-54		3
399	Spatial heterogeneity of soil biochar content affects soil quality and wheat growth and yield. **2016**, 562, 690-700		23
398	Thermal degradation capabilities of modified bio-chars and fluid cracking catalyst (FCC) for acetic acid. **2016**, 90, 243-251		11
397	Improving the deconvolution and interpretation of XPS spectra from chars by ab initio calculations. **2016**, 110, 155-171		168
396	Catalytic fast pyrolysis for improved liquid quality. **2016**, 391-429		5
395	Size distribution of carbon layer planes in biochar from different plant type of feedstock with different heating temperatures. *Chemosphere*, **2016**, 163, 252-258	8.4	4
394	Hydrothermal gasification of Cladophora glomerata macroalgae over its hydrochar as a catalyst for hydrogen-rich gas production. *Bioresource Technology*, **2016**, 222, 232-241	11	80
393	Pyrolysis of Nordic biomass types in a cyclone pilot plant. Mass balances and yields. *Fuel Processing Technology*, **2016**, 152, 274-284	7.2	14
392	Combination of biochar amendment and phytoremediation for hydrocarbon removal in petroleum-contaminated soil. *Environmental Science and Pollution Research*, **2016**, 23, 21219-21228	5.1	30

391	Promotion of hydrogen-rich gas and phenolic-rich bio-oil production from green macroalgae Cladophora glomerata via pyrolysis over its bio-char. *Bioresource Technology*, **2016**, 219, 643-651	11	81
390	Towards a sustainable paradigm of waste-to-energy process: Enhanced anaerobic digestion of sludge with woody biochar. **2016**, 135, 1054-1064		129
389	The impact of biochars prepared from agricultural residues on phosphorus release and availability in two fertile soils. *Journal of Environmental Management*, **2016**, 181, 536-543	7.9	55
388	Biochar prepared from castor oil cake at different temperatures: A voltammetric study applied for Pb(2+), Cd(2+) and Cu(2+) ions preconcentration. *Journal of Hazardous Materials*, **2016**, 318, 526-532	12.8	44
387	Influence of pyrolysis temperature and hardwood species on resulting biochar properties and their effect on azimsulfuron sorption as compared to other sorbents. **2016**, 566-567, 1454-1464		40
386	Biochar properties: Transport, fate, and impact. **2016**, 46, 1183-1296		75
385	H/C atomic ratio as a smart linkage between pyrolytic temperatures, aromatic clusters and sorption properties of biochars derived from diverse precursory materials. **2016**, 6, 22644		106
384	Characterization of Biochars and Their Use as an Amendment to Acid Soils. **2016**, 181, 412-426		26
383	Potential of Fusarium wilt-inducing chlamydospores, in vitro behaviour in root exudates and physiology of tomato in biochar and compost amended soil. **2016**, 406, 425-440		30
382	Carbon-Based Adsorbents for Postcombustion CO2 Capture: A Critical Review. **2016**, 50, 7276-89		282
381	Phosphorus removal from wastewater by field-scale fortified filter beds during a one-year study. **2016**, 37, 2953-63		13
380	Production and utilization of biochar: A review. **2016**, 40, 1-15		611
379	Mineral-Biochar Composites: Molecular Structure and Porosity. **2016**, 50, 7706-14		108
378	Alkaline-Earth-Metal-Catalyzed Thin-Film Pyrolysis of Cellulose. **2016**, 8, 818-829		41
377	Carbon footprint of rice production under biochar amendment □a case study in a Chinese rice cropping system. **2016**, 8, 148-159		37
376	Temperature effect on hydrothermal liquefaction of Nannochloropsis gaditana and Chlorella sp.. **2016**, 165, 943-951		102
375	Coke formation of model compounds relevant to pyrolysis bio-oil over ZSM-5. **2016**, 513, 67-81		65
374	Structural analysis of char by Raman spectroscopy: Improving band assignments through computational calculations from first principles. **2016**, 100, 678-692		182

373	Birchwood biochar as partial carbon black replacement in styrene-butadiene rubber composites. **2016**, 48, 305-316		36
372	Soil organic carbon content affects the stability of biochar in paddy soil. **2016**, 223, 59-66		32
371	A novel method to tailor the porous structure of KOH-activated biochar and its application in capacitive deionization and energy storage. **2016**, 87, 107-121		121
370	Lignocellulosic biomass pyrolysis: A review of product properties and effects of pyrolysis parameters. *Renewable and Sustainable Energy Reviews*, **2016**, 57, 1126-1140	16.2	1036
369	Effect of particle size and doses of olivine addition on carbon dioxide sequestration during anaerobic digestion of sewage sludge at ambient and mesophilic temperatures. **2016**, 51, 59-72		13
368	Chemical and structural properties of dissolved black carbon released from biochars. **2016**, 96, 759-767		154
367	Ameliorating soil chemical properties of a hard setting subsoil layer in Coastal Plain USA with different designer biochars. *Chemosphere*, **2016**, 142, 168-75	8.4	19
366	Slow pyrolysis of relevant biomasses in the Mediterranean basin. Part 2. Char characterisation for carbon sequestration and agricultural uses. **2016**, 120, 191-197		31
365	Highly stable rice-straw-derived charcoal in 3700-year-old ancient paddy soil: evidence for an effective pathway toward carbon sequestration. *Environmental Science and Pollution Research*, **2016**, 23, 1007-14	5.1	5
364	Biochar for crop production: potential benefits and risks. **2017**, 17, 685-716		222
363	Highly efficient adsorption of Cr(VI) from aqueous solution by Fe3+ impregnated biochar. **2017**, 38, 815-825		14
362	A Systems-Level Roadmap for Biomass Thermal Fractionation and Catalytic Upgrading Strategies. **2017**, 5, 130-150		19
361	Modified method for proximate analysis of biochars. **2017**, 124, 335-342		21
360	Evolution of chars during slow pyrolysis of citrus waste. *Fuel Processing Technology*, **2017**, 158, 255-263	7.2	30
359	Experimental comparison of two bench scale units for fast and intermediate pyrolysis. **2017**, 124, 504-514		32
358	Corn cob biochar increases soil culturable bacterial abundance without enhancing their capacities in utilizing carbon sources in Biolog Eco-plates. **2017**, 16, 713-724		27
357	Comparison of characteristics of twenty-one types of biochar and their ability to remove multi-heavy metals and methylene blue in solution. *Fuel Processing Technology*, **2017**, 160, 55-63	7.2	93
356	Effect of biochars produced from solid organic municipal waste on soil quality parameters. *Journal of Environmental Management*, **2017**, 192, 271-280	7.9	70

355	Physicochemical Characteristics of Biochar Produced from Rice Straw at Different Pyrolysis Temperature for Soil Amendment and Removal of Organics. **2017**, 87, 207-214		17
354	Effect of pyrolysis temperature on aromatic cluster size of cellulose char by quantitative multi cross-polarization 13C NMR with long range dipolar dephasing. **2017**, 116, 210-222		16
353	Effects of alkali-treated hierarchical HZSM-5 zeolites on the production of aromatic hydrocarbons from catalytic fast pyrolysis of waste cardboard. **2017**, 125, 153-161		62
352	A Direct Observation of the Fine Aromatic Clusters and Molecular Structures of Biochars. **2017**, 51, 5473-5482		109
351	Characterization of biochar and its effects on the water holding capacity of loamy sand soil: Comparison of hemlock biochar and switchblade grass biochar characteristics. *Environmental Progress and Sustainable Energy*, **2017**, 36, 1474-1479	2.5	19
350	Characterization of biochar prepared from biogas digestate. **2017**, 66, 53-60		93
349	In-situ biogas upgrading during anaerobic digestion of food waste amended with walnut shell biochar at bench scale. **2017**, 35, 669-679		57
348	Biomaterials. **2017**, 185-231		
347	Biochar-based water treatment systems as a potential low-cost and sustainable technology for clean water provision. *Journal of Environmental Management*, **2017**, 197, 732-749	7.9	182
346	Chemical and morphological evaluation of chars produced from primary biomass constituents: Cellulose, xylan, and lignin. **2017**, 104, 17-35		49
345	Gasification Char as a Potential Substitute of Activated Carbon in Adsorption Applications. **2017**, 105, 712-717		30
344	Pyrogenic carbon and its role in contaminant immobilization in soils. **2017**, 47, 795-876		59
343	Aluminum and iron biomass pretreatment impacts on biochar anion exchange capacity. **2017**, 118, 422-430		39
342	Biomass Treatment Strategies for Thermochemical Conversion. **2017**, 31, 3525-3536		54
341	Investigation on by-products of bioenergy systems (anaerobic digestion and gasification) as potential crop nutrient using FTIR, XRD, SEM analysis and phyto-toxicity test. *Journal of Environmental Management*, **2017**, 196, 201-216	7.9	35
340	The reduction of chromium (VI) phytotoxicity and phytoavailability to wheat (Triticum aestivum L.) using biochar and bacteria. **2017**, 114, 90-98		57
339	Effect of environmental exposure on charcoal density and porosity in a boreal forest. **2017**, 592, 316-325		9
338	Potassium enriched biochar production by thermal plasma processing of banana peduncle for soil application. **2017**, 123, 165-172		25

337	Steam gasification of a thermally pretreated high lignin corn stover simultaneous saccharification and fermentation digester residue. *Energy*, **2017**, 119, 400-407	7.9	3
336	Biochar total surface area and total pore volume determined by N and CO physisorption are strongly influenced by degassing temperature. **2017**, 580, 770-775		74
335	Adsorption of metribuzin from aqueous solution using magnetic and nonmagnetic sustainable low-cost biochar adsorbents. *Environmental Science and Pollution Research*, **2017**, 24, 4577-4590	5.1	58
334	Effects of pyrolysis conditions on Miscanthus and corncob chars: Characterization by IR, solid state NMR and BPCA analysis. **2017**, 128, 335-345		17
333	Catalytic microwave pyrolysis of oil palm fiber (OPF) for the biochar production. *Environmental Science and Pollution Research*, **2017**, 24, 26521-26533	5.1	12
332	Solid-State NMR Investigation of Bio-chars Produced from Biomass Components and Whole Biomasses. **2017**, 10, 1036-1044		4
331	Polycyclic aromatic hydrocarbons (PAHs) in biochar Their formation, occurrence and analysis: A review. **2017**, 114, 1-11		88
330	Soil biochemical properties and crop productivity following application of locally produced biochar at organic farms on Waldron Island, WA. **2017**, 136, 31-46		21
329	Carbon sequestration potential and physicochemical properties differ between wildfire charcoals and slow-pyrolysis biochars. **2017**, 7, 11233		67
328	Biochar soil amendments for increased crop yields: How to design a designer biochar. **2017**, 63, 5425-5437		8
327	Retracted Article: The feasibility of char and bio-oil production from pyrolysis of pit latrine sludge. **2017**,		
326	Recent developments of post-modification of biochar for electrochemical energy storage. *Bioresource Technology*, **2017**, 246, 224-233	11	97
325	A Dialogue on Perspectives of Biochar Applications and Its Environmental Risks. **2017**, 228, 1		24
324	Novel multidimensional carbons from structural transformations of waste lignin: A low temperature pyrolysis investigation. *Fuel Processing Technology*, **2017**, 166, 312-321	7.2	18
323	Magnesium Oxide Embedded Nitrogen Self-Doped Biochar Composites: Fast and High-Efficiency Adsorption of Heavy Metals in an Aqueous Solution. **2017**, 51, 10081-10089		197
322	Composite-pulse and partially dipolar dephased multiCP for improved quantitative solid-state C NMR. **2017**, 285, 68-78		46
321	Optimum Utilization of Biochemical Components in Chlorella sp. KR1 via Subcritical Hydrothermal Liquefaction. *ACS Sustainable Chemistry and Engineering*, **2017**, 5, 7240-7248	8.3	11
320	Uptake of Cu2+ and Zn2+ from simulated wastewater using muskmelon peel biochar: Isotherm and kinetic studies. **2017**, 4, 236-248		18

319	Composition and structure of natural organic matter through advanced nuclear magnetic resonance techniques. **2017**, 4,		5
318	A critical review on sustainable biochar system through gasification: Energy and environmental applications. *Bioresource Technology*, **2017**, 246, 242-253	11	188
317	Biochar physicochemical parameters as a result of feedstock material and pyrolysis temperature: predictable for the fate of biochar in soil?. **2017**, 39, 1381-1395		15
316	Profiles of Volatile Organic Compounds in Biochar: Insights into Process Conditions and Quality Assessment. *ACS Sustainable Chemistry and Engineering*, **2017**, 5, 510-517	8.3	40
315	Temperature and reaction atmosphere effects on the properties of corn stover biochar. *Environmental Progress and Sustainable Energy*, **2017**, 36, 696-707	2.5	11
314	A multicomponent approach to using waste-derived biochar in biofiltration: A case study based on dissimilar types of waste. **2017**, 119, 565-576		24
313	Effects of biochar and maize straw on the short-term carbon and nitrogen dynamics in a cultivated silty loam in China. *Environmental Science and Pollution Research*, **2017**, 24, 1019-1029	5.1	32
312	Characterization and quantification of biochar alkalinity. *Chemosphere*, **2017**, 167, 367-373	8.4	163
311	Rheological behaviour and stability characteristics of biochar-water slurry fuels: Effect of biochar particle size and size distribution. *Fuel Processing Technology*, **2017**, 156, 27-32	7.2	15
310	Advances and future directions of biochar characterization methods and applications. **2017**, 47, 2275-2330		128
309	Study on the evolution characteristic of intermediate during the pyrolysis of oil shale. **2017**, 130, 2227-2238		4
308	Biochar and Soil Physical Properties. *Soil Science Society of America Journal*, **2017**, 81, 687-711	2.5	280
307	Air gasification of biogas-derived digestate in a downdraft fixed bed gasifier. **2017**, 69, 162-169		49
306	Biomass Chars: The Effects of Pyrolysis Conditions on Their Morphology, Structure, Chemical Properties and Reactivity. **2017**, 10, 796		94
305	Application of fast pyrolysis char in an electric arc furnace. *Fuel Processing Technology*, **2018**, 174, 61-68	7.2	14
304	Development of biochar as fuel and catalyst in energy recovery technologies. **2018**, 188, 477-488		106
303	Abundant Nonprotonated Aromatic and Oxygen-Bonded Carbons Make Humic Substances Distinct from Biopolymers. **2018**, 5, 476-480		28
302	Insight into Multiple and Multilevel Structures of Biochars and Their Potential Environmental Applications: A Critical Review. **2018**, 52, 5027-5047		349

301	Biochar characteristics and early applications in anaerobic digestion-a review. **2018**, 6, 2892-2909		70
300	Structural Characterization of Loblolly Pine Derived Biochar by X-ray Diffraction and Electron Energy Loss Spectroscopy. *ACS Sustainable Chemistry and Engineering*, **2018**, 6, 2621-2629	8.3	39
299	Synergestic effect in the steam co-gasification of olive pomace, coal and petcoke: Thermogravimetric-mass spectrometric analysis. **2018**, 159, 140-150		28
298	Effects of biochar application in forest ecosystems on soil properties and greenhouse gas emissions: a review. **2018**, 18, 546-563		178
297	Pyrolysis of chemically treated corncob for biochar production and its application in Cr(VI) removal. *Environmental Progress and Sustainable Energy*, **2018**, 37, 1606-1617	2.5	39
296	Surface oxygenation of biochar through ozonization for dramatically enhancing cation exchange capacity. **2018**, 5,		20
295	Biochar immobilizes soil-borne arsenic but not cationic metals in the presence of low-molecular-weight organic acids. **2018**, 630, 1188-1194		25
294	A review on common adsorbents for acid gases removal: Focus on biochar. *Renewable and Sustainable Energy Reviews*, **2018**, 81, 1705-1720	16.2	101
293	Impact of biochar properties on soil conditions and agricultural sustainability: A review. *Land Degradation and Development*, **2018**, 29, 2124-2161	4.4	118
292	Sewage sludge gasification in a bench scale rotary kiln. *Fuel*, **2018**, 212, 88-94	7.1	41
291	Characterization of char from biomass gasification and its similarities with activated carbon in adsorption applications. **2018**, 227, 92-99		87
290	The feasibility of char and bio-oil production from pyrolysis of pit latrine sludge. **2018**, 4, 253-264		7
289	Review of Pulverized Combustion of Non-Woody Residues. **2018**, 32, 4069-4095		16
288	Co-gasification of pine and oak biochar with sub-bituminous coal in carbon dioxide. *Bioresource Technology*, **2018**, 251, 31-39	11	24
287	Sustainable bioeconomy transitions: Targeting value capture by integrating pyrolysis in a winery waste biorefinery. **2018**, 172, 3387-3397		19
286	Characterization and valorization of biomass char: a comparison with biomass ash. *Environmental Science and Pollution Research*, **2018**, 25, 3458-3467	5.1	11
285	Characterization and ammonia adsorption of biochar prepared from distillers' grains anaerobic digestion residue with different pyrolysis temperatures. **2018**, 93, 198-206		14
284	Detection of Biochar Carbon by Fluorescence and Near-Infrared-Based Chemometrics. **2018**, 24, 345-361		2

283	An Experimental and Theoretical Study of the Gasification of Miscanthus Briquettes in a Double-Stage Downdraft Gasifier: Syngas, Tar, and Biochar Characterization. **2018**, 11, 3225		8
282	Rice straw biochar as a novel niche for improved alterations to the cecal microbial community in rats. **2018**, 8, 16426		5
281	Biochar Amendment to Soil for Sustainable Agriculture. **2018**, 207-227		3
280	Biochar for sustainable soil and environment: a comprehensive review. **2018**, 11, 1		16
279	Characterization the potential of biochar from cow and pig manure for geoecology application. **2018**, 131, 012055		6
278	Sorption of ammonium and nitrate to biochars is electrostatic and pH-dependent. **2018**, 8, 17627		93
277	Preparation and Application of Biochar-Based Catalysts for Biofuel Production. *Catalysts*, **2018**, 8, 346	4	90
276	Characterization of mesoporous biochar produced from biogas digestate implemented in an anaerobic process of large-scale hog farm. *Biomass Conversion and Biorefinery*, **2018**, 8, 945-951	2.3	5
275	Biochar Supercapacitors: Recent Developments in the Materials and Methods. **2018**, 223-249		7
274	Pyrolysis behavior and economics analysis of the biomass pyrolytic polygeneration of forest farming waste. *Bioresource Technology*, **2018**, 270, 189-197	11	19
273	Fast Pyrolysis of Sisal Residue in a Pilot Fluidized Bed Reactor. **2018**, 32, 9478-9492		3
272	Use of Penicillium bilaiae to improve phosphorus bioavailability of thermally treated sewage sludge A potential novel type biofertiliser. **2018**, 69, 169-177		11
271	Production Temperature Effects on the Structure of Hydrochar-Derived Dissolved Organic Matter and Associated Toxicity. **2018**, 52, 7486-7495		48
270	The Chemical Structure of Carbon Nanothreads Analyzed by Advanced Solid-State NMR. **2018**, 140, 7658-7666		33
269	Experimental investigation of hardwood air gasification in a pilot scale bubbling fluidized bed reactor and CFD simulation of jet/grid and pressure conditions. **2018**, 168, 599-610		20
268	Bone char vs. S-enriched bone char: Multi-method characterization of bone chars and their transformation in soil. **2018**, 643, 145-156		12
267	A predictive model of biochar formation and characterization. **2018**, 134, 326-335		39
266	A versatile approach to the synthesis of biomass derived from furfural residues as a potential adsorbent. **2018**, 6, 5049-5052		7

265	Protective Carbon Overlayers from 2,3-Naphthalenediol Pyrolysis on Mesoporous SiO and Al Analyzed by Solid-State NMR. **2018**, 11,		3
264	Valorization of biochars from pinewood gasification and municipal solid waste torrefaction as peat substitutes. *Environmental Science and Pollution Research*, **2018**, 25, 26461-26469	5.1	17
263	Activity of chars and activated carbons for removal and decomposition of tar model compounds A review. *Renewable and Sustainable Energy Reviews*, **2018**, 94, 1044-1056	16.2	58
262	Effects of temperature and low-concentration oxygen on pine wood sawdust briquettes pyrolysis: Gas yields and biochar briquettes physical properties. *Fuel Processing Technology*, **2018**, 177, 228-236	7.2	7
261	Biochar. **2018**, 301-355		2
260	Changes in root traits explain the variability of biochar effects on fruit production in eight agronomic species. **2019**, 9, 139-153		6
259	Wood-based biochar for the removal of potentially toxic elements in water and wastewater: a critical review. **2019**, 64, 216-247		228
258	Pyrolysis and carbon dioxide gasification kinetics of hydrochar produced from cow manure. *Environmental Progress and Sustainable Energy*, **2019**, 38, 154-162	2.5	9
257	Spectroscopic analyses combined with Gaussian and Coats-Redfern models to investigate the characteristics and pyrolysis kinetics of sugarcane residue-derived biochars. **2019**, 237, 117855		20
256	Biochar application on paddy and purple soils in southern China: soil carbon and biotic activity. **2019** , 6, 181499		11
255	Carbon mineralization in subtropical dryland soil amended with different biochar sources. **2019**, 12, 1		2
254	Short-term leachability of salts from Atriplex-derived biochars. **2019**, 688, 701-707		4
253	Effects of post-pyrolysis air oxidation on the chemical composition of biomass chars investigated by solid-state nuclear magnetic resonance spectroscopy. **2019**, 153, 173-178		4
252	Feedstock-induced changes in composition and stability of biochar derived from different agricultural wastes. **2019**, 12, 1		8
251	Slow Pyrolysis Temperature and Duration Effects on Fuel Properties of Food Rice Waste Bio-Char. **2019**, 797, 319-326		1
250	Characteristics of biochar porosity by NMR and study of ammonium ion adsorption. **2019**, 143, 104687		19
249	CFD analysis and characterization of biochar produced via fixed-bed gasification of fallen leaf pellets. *Energy*, **2019**, 186, 115904	7.9	8
248	Kinetics of Carbon Mineralization and Sequestration of Sole and/or Co-amended Biochar and Cattle Manure in a Sandy Soil. **2019**, 50, 2593-2609		3

247	Phosphorus retention and availability in three contrasting soils amended with rice husk and corn cob biochar at varying pyrolysis temperatures. **2019**, 341, 10-17		64
246	Recovery of Cr(III) by using chars from the co-gasification of agriculture and forestry wastes. *Environmental Science and Pollution Research*, **2019**, 26, 22723-22735	5.1	5
245	Impact of oxidative carbonization on structure development of loblolly pine-derived biochar investigated by nuclear magnetic resonance spectroscopy and X-ray photoelectron spectroscopy. **2019**, 96, 140-147		7
244	Microstructure and mechanical, physical and structural properties of sustainable lightweight metakaolin-based geopolymer cements and mortars employing rice husk. **2019**, 7, 199-212		15
243	Biocarbon Production and Use as a Fuel. **2019**, 295-324		2
242	Strategic use of biochar for CO2 capture and sequestration. **2019**, 32, 128-139		91
241	Effects of wood biomass type and airflow rate on fuel and soil amendment properties of biochar produced in a top-lit updraft gasifier. *Environmental Progress and Sustainable Energy*, **2019**, 38, 13105	2.5	9
240	Biochar's role as an electron shuttle for mediating soil N2O emissions. **2019**, 133, 94-96		30
239	Assessment of energy parameters of biomass and biochars, leachability of heavy metals and phytotoxicity of their ashes. **2019**, 21, 786-800		40
238	Impact of Carbon Properties on Mo2C/Carbon Catalysts for the Hydrodeoxygenation of 4-Methylphenol. **2019**, 33, 4506-4514		6
237	Biochar versus bone char for a sustainable inorganic arsenic mitigation in water: What needs to be done in future research?. **2019**, 127, 52-69		58
236	Carbonaceous Catalysts from Biomass. **2019**, 185-231		1
235	Effects of innovative biofertilizers on yield of processing tomato cultivated in organic cropping systems in northern Italy. **2019**, 129-136		16
234	Biochar as a management tool for soilborne diseases affecting early stage nursery seedling production. **2019**, 120, 34-42		21
233	The Heat Treatment Severity Index: A new metric correlated to the properties of biochars obtained from entrained flow pyrolysis of biomass. *Fuel*, **2019**, 244, 61-68	7.1	11
232	Food waste to biochars through pyrolysis: A review. **2019**, 144, 310-320		150
231	Woody Feedstock Pretreatments to Enhance Pyrolysis Bio-oil Quality and Produce Transportation Fuel. **2019**,		1
230	Impacts of different biochar types on the anaerobic digestion of sewage sludge.. *RSC Advances*, **2019**, 9, 42375-42386	3.7	34

229	Technogenic metallic elements in biomass and their effects on biomass product properties. **2019**, 68, 623-644		1
228	Microwave assisted and conventional pyrolysis of MDF Characterization of the produced biochars. **2019**, 138, 218-230		28
227	Production and Characterisation of Teak Tree Saw Dust and Rice Husk Biochar. **2019**, 291-306		1
226	Kinetic study of uranium removal from aqueous solutions by macaba biochar. **2019**, 206, 1354-1366		7
225	Production and Formation of Biochar. **2019**, 3-18		12
224	Elemental and Spectroscopic Characterization of Low-Temperature (350°C) Lignocellulosic- and Manure-Based Designer Biochars and Their Use as Soil Amendments. **2019**, 37-58		6
223	Characterization of products derived from the high temperature flash pyrolysis of microalgae and rice hulls. **2019**, 196, 527-537		13
222	Labile and recalcitrant components of organic matter of a Mollisol changed with land use and plant litter management: An advanced C NMR study. **2019**, 660, 1-10		9
221	Removal of azo dye from water via adsorption on biochar produced by the gasification of wood wastes. *Environmental Science and Pollution Research*, **2019**, 26, 28558-28573	5.1	37
220	Insights into biochar and hydrochar production and applications: A review. *Energy*, **2019**, 171, 581-598	7.9	241
219	Colloidal stability and aggregation kinetics of biochar colloids: Effects of pyrolysis temperature, cation type, and humic acid concentrations. **2019**, 658, 1306-1315		47
218	Conceptual design of a dedicated-crop biorefinery for Jatropha curcas using a systematic sustainability evaluation. **2019**, 13, 86-106		5
217	Measuring biomass fast pyrolysis kinetics: State of the art. **2019**, 8, e326		27
216	Biochar Recovery Material from Pyrolysis of Sewage Sludge: A Review. **2020**, 11, 3677-3709		27
215	Understanding structure-performance correlation of biochar materials in environmental remediation and electrochemical devices. **2020**, 382, 122977		59
214	Overview of biochar production from preservative-treated wood with detailed analysis of biochar characteristics, heavy metals behaviors, and their ecotoxicity. *Journal of Hazardous Materials*, **2020**, 384, 121356	12.8	45
213	Characterization of Ugandan biomass wastes as the potential candidates towards bioenergy production. *Renewable and Sustainable Energy Reviews*, **2020**, 117, 109477	16.2	23
212	Synthesis and characterization of amorphous mesoporous silica from palm kernel shell ash. **2020**, 59, 159-164		17

211	Gasification biochar from biowaste (food waste and wood waste) for effective CO adsorption. *Journal of Hazardous Materials*, **2020**, 391, 121147	12.8	62
210	Analysis of green pesticide production by valorization of husks from Croton megalocarpus tree nuts. *Environmental Progress and Sustainable Energy*, **2020**, 39, e13312	2.5	
209	Influence of Pyro-Gasification and Activation Conditions on the Porosity of Activated Biochars: A Literature Review. **2020**, 11, 5079-5098		10
208	A Review of Non-Soil Biochar Applications. **2020**, 13,		37
207	Co-pyrolysis of lignocellulosic and macroalgae biomasses for the production of biochar - A review. *Bioresource Technology*, **2020**, 297, 122408	11	66
206	Environmentally friendly and sustainable bark cloth for garment applications: Evaluation of fabric properties and apparel development. **2020**, 23, e00136		4
205	Advances in design strategies for preparation of biochar based catalytic system for production of high value chemicals. *Bioresource Technology*, **2020**, 299, 122564	11	22
204	Mechanism of orthophosphate (PO4-P) adsorption onto different biochars. **2020**, 17, 100572		31
203	Biochar of distillers' grains anaerobic digestion residue: Influence of pyrolysis conditions on its characteristics and ammonium adsorptive optimization. **2020**, 38, 86-97		3
202	Gasification of Cup Plant (Silphium perfoliatum L.) Biomass: Energy Recovery and Environmental Impacts. **2020**, 13, 4960		3
201	The rational design of biomass-derived carbon materials towards next-generation energy storage: A review. *Renewable and Sustainable Energy Reviews*, **2020**, 134, 110308	16.2	49
200	Artificial Neural Networks To Distinguish Charcoal from Eucalyptus and Native Forests Based on Their Mineral Components. **2020**, 34, 9599-9608		1
199	Thermochemical conversion of oil palm Fiber-LDPE hybrid waste into biochar. **2020**, 14, 1313-1323		11
198	Redox-Active Biochar and Conductive Graphite Stimulate Methanogenic Metabolism in Anaerobic Digestion of Waste-Activated Sludge: Beyond Direct Interspecies Electron Transfer. *ACS Sustainable Chemistry and Engineering*, **2020**, 8, 12626-12636	8.3	24
197	Mechanism of in-situ dynamic catalysis and selective deactivation of H2O-activated biochar for biomass tar reforming. *Fuel*, **2020**, 279, 118450	7.1	55
196	Iron oxide loaded biochar/polyaniline nanocomposite: Synthesis, characterization and electrochemical analysis. **2020**, 119, 108097		7
195	Biochar Potential in Improving Agricultural Production in East Africa. **2020**,		1
194	Co-pyrolysis of softwood with waste mussel shells: Biochar analysis. *Fuel*, **2020**, 282, 118792	7.1	15

193	Techno-economic and environmental assessments for nutrient-rich biochar production from cattle manure: A case study in Idaho, USA. **2020**, 279, 115782		21
192	Impact of agricultural management practices on soil carbon sequestration and its monitoring through simulation models and remote sensing techniques: A review. **2020**, 1-49		18
191	Corn and hardwood biochars affected soil microbial community and enzyme´activities. **2020**, 3, e20082		3
190	Biochar amendment as a remediation strategy for surface soils impacted by crude oil. **2020**, 265, 115006		17
189	Pyrolysis of microalgae biomass over carbonate catalysts. **2020**, 95, 3270-3279		10
188	Selective production of glycolaldehyde via hydrothermal pyrolysis of glucose: Experiments and microkinetic modeling. **2020**, 149, 104846		6
187	Hydrochar structural determination from artifact-free Raman analysis. **2020**, 167, 378-387		6
186	Characterization of tar generated from the mixture of municipal solid waste and coal pyrolysis at 800 °C. **2020**, 6, 147-152		11
185	Enhanced high-quality biomethane production from anaerobic digestion of primary sludge by corn stover biochar. *Bioresource Technology*, **2020**, 306, 123159	11	43
184	Waste valorization technology options for the egg and broiler industries: A review and recommendations. **2020**, 262, 121129		21
183	Biochar based catalysts for the abatement of emerging pollutants: A review. **2020**, 394, 124856		64
182	Temporal physicochemical changes and transformation of biochar in a rice paddy: Insights from a 9-year field experiment. **2020**, 721, 137670		28
181	Hybrid biocomposites from polypropylene, sustainable biocarbon and graphene nanoplatelets. **2020**, 10, 10714		20
180	Impact of Biomass Sources on Acoustic-Based Chemical Functionalization of Biochars for Improved CO2 Adsorption. **2020**, 34, 8608-8627		4
179	Oxidation kinetics of biochar from woody and herbaceous biomass. **2020**, 401, 126043		17
178	A novel self-sustained single step process for synthesizing activated char from ligno-cellulosic biomass. *Fuel Processing Technology*, **2020**, 208, 106516	7.2	3
177	Filter Media-Packed Bed Reactor Fortification with Biochar to Enhance Wastewater Quality. **2020**, 10, 790		1
176	The Effect of Gasification Conditions on the Surface Properties of Biochar Produced in a Top-Lit Updraft Gasifier. **2020**, 10, 688		9

175	Biocoal - Quality control and assurance. **2020**, 135, 105509		12
174	Biomass ashes as potent adsorbent for pesticide: prediction of adsorption capacity by artificial neural network. **2020**, 17, 3209-3216		5
173	Application of biochar-based materials in environmental remediation: from multi-level structures to specific devices. *Biochar*, **2020**, 2, 1-31	10	60
172	Adsorptive removal of micropollutants from wastewater with floating-fixed-bed gasification char. **2020**, 8, 103757		1
171	Role of redox-active biochar with distinctive electrochemical properties to promote methane production in anaerobic digestion of waste activated sludge. **2021**, 278, 123212		33
170	Facile preparation of sulfonated biochar for highly efficient removal of toxic Pb(II) and Cd(II) from wastewater. **2021**, 750, 141545		35
169	Study of surface heterogeneity and nitrogen functionalizing of biochars: Molecular modeling approach. **2021**, 171, 161-170		6
168	Biochar as a support for nanocatalysts and other reagents: Recent advances and applications. **2021**, 426, 213585		34
167	Microscopic mechanism about the selective adsorption of Cr(VI) from salt solution on O-rich and N-rich biochars. *Journal of Hazardous Materials*, **2021**, 404, 124162	12.8	26
166	Morpho-mineralogical exploration of crop, weed and tree derived biochar. *Journal of Hazardous Materials*, **2021**, 407, 124370	12.8	18
165	Development of biomass-derived biochar for agronomic and environmental remediation applications. *Biomass Conversion and Biorefinery*, **2021**, 11, 339-361	2.3	8
164	Progress of using biochar as a catalyst in thermal conversion of biomass. **2021**, 37, 229-258		8
163	Advanced applications of green materials for gas separation and storage. **2021**, 681-703		0
162	Application of Biochar for Sustainable Development in Agriculture and Environmental Remediation. **2021**, 133-153		1
161	Biopolymer-derived carbonaceous composites and their potential applications. **2021**, 253-280		2
160	Characterization of Bael Shell (Aegle marmelos) Pyrolytic Biochar. **2021**, 747-760		
159	Biomass pyrolysis technologies for value-added products: a state-of-the-art review. **2021**, 23, 14324-14378		18
158	Biochar from lab-scale pyrolysis: influence of feedstock and operational temperature. *Biomass Conversion and Biorefinery*, 1	2.3	6

157	Can the addition of biochar improve the performance of biogas digesters operated at 45°C?. **2022**, 27, 200648-0		0
156	Biochar Volatile Matter and Feedstock Effects on Soil Nitrogen Mineralization and Soil Fungal Colonization. *Sustainability*, **2021**, 13, 2018	3.6	2
155	Biochar production, activation and adsorptive applications: a review. **2021**, 19, 2237-2259		27
154	Critical review of biochar applications in geoengineering infrastructure: moving beyond agricultural and environmental perspectives. *Biomass Conversion and Biorefinery*, 1	2.3	20
153	Analysis and Characterization of Metallic Nodules on Biochar from Single-Stage Downdraft Gasification. **2021**, 9, 533		0
152	Role of biochar, compost and plant growth promoting rhizobacteria in the management of tomato early blight disease. **2021**, 11, 6092		12
151	Physiochemical Characterization of Biochars from Six Feedstocks and Their Effects on the Sorption of Atrazine in an Organic Soil. **2021**, 11, 716		9
150	Biochar prepared from Fe-rich sludge as suitable microbial carriers for facilitating biodegradation of phenanthrene in soil. **2021**, 96, 2014-2021		0
149	Cement Catalyzed Valorization of Rice Straw into Upgraded Bio-Oil and Fuel Gases Using Pyrolysis Reactions. 1-15		
148	Review on biomass feedstocks, pyrolysis mechanism and physicochemical properties of biochar: State-of-the-art framework to speed up vision of circular bioeconomy. **2021**, 297, 126645		63
147	Occurrence, formation and environmental fate of polycyclic aromatic hydrocarbons in biochars. **2021**, 1, 296-305		6
146	Multifunctional applications of biochar beyond carbon storage. **2022**, 1-51		58
145	Porous biochar purification method from coconut shell by alkali roasting followed by leaching and its application as a lithium primary battery. **2021**, 749, 012036		
144	Biochar-based Water Treatment Systems for Clean Water Provision. **2021**, 77-101		
143	Combined analyses of hygroscopic properties of organic and inorganic components of three representative black carbon samples recovered from pyrolysis. **2021**, 771, 145393		0
142	Efficiency assessment of municipal landfill leachate treatment during advanced oxidation process (AOP) with biochar adsorption (BC). *Journal of Environmental Management*, **2021**, 287, 112309	7.9	15
141	A scientometric review of biochar preparation research from 2006 to 2019. *Biochar*, **2021**, 3, 283-298	10	4
140	Utilizing dissimilar feedstocks derived biochar amendments to alter soil biological indicators in acidic soil of Northeast India. *Biomass Conversion and Biorefinery*, 1	2.3	3

139	Biochar for Wastewater Treatment. **2021**, 103-117		
138	Biochar Amendment Improves Crop Production in Problematic Soils. **2021**, 189-204		0
137	Yeast-based biodiesel production using sulfonated carbon-based solid acid catalyst by an integrated biorefinery of durian peel waste. **2021**, 171, 647-657		10
136	Mini-Review on Hot Gas Filtration in Biomass Gasification: Focusing on Ceramic Filter Candles. **2021**, 35, 11800-11819		4
135	Mycorrhizal inoculation and treatment with biochar and compost from pruning waste improve the qualitative properties of a calcareous soil under wheat cultivation.		
134	Characterization Techniques as Supporting Tools for the Interpretation of Biochar Adsorption Efficiency in Water Treatment: A Critical Review. **2021**, 26,		1
133	The potential of biochar and lignin-based adsorbents for wastewater treatment: Comparison, mechanism, and application□A review. **2021**, 166, 113473		10
132	Gasification biochar from horticultural waste: An exemplar of the circular economy in Singapore. **2021**, 781, 146573		6
131	Use of charcoal from gasification residues in adsorption pilot plant for the practical application of circular economy in industrial wastewater treatment. 1-18		0
130	Biochar Derived from Domestic Sewage Sludge: Influence of Temperature Pyrolysis on Biochars□ Chemical Properties and Phytotoxicity. **2021**, 2021, 1-10		1
129	Physicochemical Changes in Biomass Chars by Thermal Oxidation or Ambient Weathering and Their Impacts on Sorption of a Hydrophobic and a Cationic Compound. **2021**, 55, 13072-13081		1
128	Assessment of Pyrolytic Biochar as a Solar Absorber Material for Cost-Effective Water Evaporation Enhancement.		0
127	Biochar derived from agricultural wastes and wood residues for sustainable agricultural and environmental applications. **2021**,		4
126	Reusing biochar as a filler or cement replacement material in cementitious composites: A review. **2021**, 300, 124295		7
125	Properties of biochar and its potential role in climate change mitigation and bioenergy generation: a review. 1		
124	Prediction of char production from slow pyrolysis of lignocellulosic biomass using multiple nonlinear regression and artificial neural network. **2021**, 159, 105286		4
123	Use of either pumice or willow-based biochar amendments to decrease soil salinity under arid conditions. **2021**, 24, 101849		4
122	Relative proportions of organic carbon functional groups in biochars as influenced by spectral data collection and processing. *Chemosphere*, **2021**, 283, 131023	8.4	0

121	A review on lignocellulosic biomass waste into biochar-derived catalyst: Current conversion techniques, sustainable applications and challenges. **2021**, 154, 106245		5
120	A critical review of the possible adverse effects of biochar in the soil environment. **2021**, 796, 148756		21
119	Effects of biochar amendment on wheat production, mycorrhizal status, soil microbial community, and properties of an Andisol in Southern Chile. **2021**, 273, 108306		1
118	Propensity and appraisal of biochar performance in removal of oil spills: A comprehensive review. **2021**, 288, 117676		9
117	Char suppression mechanism using recycled intermediate phenol in supercritical water gasification of coal. *Fuel*, **2021**, 305, 121441	7.1	1
116	Life-cycle assessment of hydrogen production via catalytic gasification of wheat straw in the presence of straw derived biochar catalyst. *Bioresource Technology*, **2021**, 341, 125796	11	6
115	Experimental and DFT investigation on N-functionalized biochars for enhanced removal of Cr(VI). **2021**, 291, 118244		3
114	Adsorptive removal of fluoride using biochar □A potential application in drinking water treatment. **2022**, 278, 119106		8
113	Biochar for asphalt modification: A case of high-temperature properties improvement. **2022**, 804, 150194		5
112	Production, characterization, activation and environmental applications of engineered biochar: a review. **2021**, 19, 2261-2297		30
111	Environmental Benign Biochar Technologies: Strategic Utilization for CO2 Capture and Wastewater Treatment. **2021**, 181-214		
110	State-of-the-Art Char Production with a Focus on Bark Feedstocks: Processes, Design, and Applications. **2021**, 9, 87		4
109	Encyclopedia of Sustainability Science and Technology. **2012**, 845-893		6
108	Recent Development in Bioremediation of Soil Pollutants Through Biochar for Environmental Sustainability. **2020**, 123-140		7
107	Use of Char Derived from Waste Plastic Pyrolysis for Asphalt Binder Modification. **2021**, 337-356		6
106	Adsorption of Dissolved Organic Compounds by Black Carbon. **2013**, 359-385		6
105	Microstructural analysis of nitrogen-doped char by Raman spectroscopy: Raman shift analysis from first principles. **2020**, 167, 559-574		20
104	Water hyacinth as a biomass: A review. **2020**, 277, 122214		34

103	CHAPTER 10:Biochar Production, Activation and Application as a Promising Catalyst. 340-366		3
102	Mechanical Properties of Mortar Containing Bio-Char From Pyrolysis. **2012**, 16, 67-74		27
101	Risk Evaluation of Pyrolyzed Biochar from Multiple Wastes. **2019**, 2019, 1-28		22
100	Effect of biochar on N2O emission, crop yield and properties of Stagnic Luvisol in a field experiment. **2019**, 106, 297-306		5
99	Biochar from sugarcane filtercake reduces soil CO2 emissions relative to raw residue and improves water retention and nutrient availability in a highly-weathered tropical soil. **2014**, 9, e98523		23
98	Morphological and physicochemical characterization of biochar produced by gasification of selected forestry species. **2017**, 26,		17
97	Comparison of photoacoustic, diffuse reflectance, attenuated total reflectance and transmission infrared spectroscopy for the study of biochars. **2018**, 20, 75-83		4
96	Cadmium and Copper Removal From Aqueous Solutions Using Chitosan-Coated Gasifier Biochar. **2020**, 8,		7
95	Soil amendment impact to soil organic matter and physical properties on the three soil types after second corn cultivation. **2020**, 5, 150-168		10
94	Preparation and Application of Biochars for Organic and Microbial Control in Wastewater Treatment Regimes. **2019**, 19-34		2
93	Application of Spectral Induced Polarization and Electrical Impedance Tomography on Mixtures of Biochars and Active Carbons with Sand. **2012**,		1
92	Review Paper: The Fundamentals of Biochar as a Soil Amendment Tool and Management in Agriculture Scope: An Overview for Farmers and Gardeners. **2017**, 06, 38-61		18
91	Optimizing slow pyrolysis of banana peels wastes using response surface methodology. **2019**, 24, 354-361		27
90	Physical and chemical characterizations of biochars derived from different agricultural residues.		6
89	Interactions between Biochar and Compost Treatment and Mycorrhizal Fungi to Improve the Qualitative Properties of a Calcareous Soil under Rhizobox Conditions. **2021**, 11, 993		2
88	Hydrothermal and Thermochemical Synthesis of Bio-Oil from Lignocellulosic Biomass: Composition, Engineering and Catalytic Upgrading. **2016**, 325-370		1
87	Characterization of soil amendment potential of 18 different biochar types produced by slow pyrolysis. *Eurasian Journal of Soil Science*, **2019**, 8, 329-339	0.9	3
86	The properties of biochars derived from different plant residue and different pyrolysis temperatures. *Akademik Ziraat Dergisi*,	1	

85	CO2 adsorption by carbonaceous materials and nanomaterials. **2020**, 173-192		1
84	Tailoring biochar for persulfate-based environmental catalysis: Impact of biomass feedstocks. *Journal of Hazardous Materials*, **2021**, 424, 127663	12.8	6
83	Improvement effects of conditioners on properties of acidified-salinized soils and lettuce growth. *Journal of Plant Nutrition*, 1-14	2.3	
82	Biochars intended for water filtration: A comparative study with activated carbons of their physicochemical properties and removal efficiency towards neutral and anionic organic pollutants. *Chemosphere*, **2021**, 288, 132538	8.4	6
81	A Biorefinery Based Zero-Waste Utilization of Non-edible Oilseeds for Biodiesel and Biofuel Production Along with Chemicals and Biomaterials. *Clean Energy Production Technologies*, **2020**, 21-55	0.8	
80	Lignocellulosic Biomass. **2020**, 499-535		
79	Recent Advances in Biochar-Based Mitigation of Dyes, Agrochemicals, and Pharmaceutical Pollutants. *Clean Energy Production Technologies*, **2020**, 391-415	0.8	
78	The impact of water soaking on physicochemical activated carbon produced by various thermal cracking temperature. **2020**,		0
77	Recent advances in the application of biochar in microbial electrochemical cells. *Fuel*, **2021**, 311, 122501	7.1	5
76	Biochar as a Tool for the Remediation of Agricultural Soils. **2021**, 281-303		
75	Role of Biochar in the Removal of Organic and Inorganic Contaminants from Wastewater. **2021**, 107-134		
74	Biochar-based land development. *Land Degradation and Development*,	4.4	0
73	Treatment of wastewater from biomass pyrolysis and recovery of its organic compounds with char-assisted drying. *Fuel*, **2022**, 312, 122825	7.1	
72	Preparation of nano-biochar from conventional biorefineries for high-value applications. *Renewable and Sustainable Energy Reviews*, **2022**, 157, 112057	16.2	2
71	Lignocellulosic biomass carbonization for biochar production and characterization of biochar reactivity. *Renewable and Sustainable Energy Reviews*, **2022**, 157, 112056	16.2	7
70	Characteristics of Biochar from Jengkok Tobacco: The Effect of Quenching in Pyrolysis Process. *Materials Science Forum*, 1051, 64-70	0.4	
69	Functionalized green carbon-based nanomaterial for environmental application. **2022**, 347-382		
68	Characteristic Spectral Features of (TP) in the 5-15 Terahertz Range.. *Applied Spectroscopy*, **2022**, 370282311060384		

67	A review of the recent trend in the synthesis of carbon nanomaterials derived from oil palm by-product materials.. *Biomass Conversion and Biorefinery*, **2022**, 1-32	2.3	2
66	Metal-Supported Biochar Catalysts for Sustainable Biorefinery, Electrocatalysis and Energy Storage Applications: A Review. *Catalysts*, **2022**, 12, 207	4	2
65	Valorization of Cotton Gin Trash through Thermal and Biological Conversion for Soil Application. *Sustainability*, **2021**, 13, 13842	3.6	0
64	Does biochar improve nutrient availability in Ultisols of tree plantations in the Ecuadorian Amazonia?. *Soil Science Society of America Journal*,	2.5	0
63	Use of Biochar in Asphalts: Review. *Sustainability*, **2022**, 14, 4745	3.6	1
62	Data_Sheet_1.docx. **2020**,		
61	Emerging application of biochar as a renewable and superior filler in polymer composites.. *RSC Advances*, **2022**, 12, 13938-13949	3.7	1
60	Biochar characterization for water and wastewater treatments. **2022**, 135-152		
59	Retention of oxyanions on biochar surface. **2022**, 233-276		
58	Life cycle assessment of bioenergy from lignocellulosic herbaceous biomass: The case study of Spartina argentinensis. *Energy*, **2022**, 124215	7.9	1
57	Synergetic effects of biochar addition on mesophilic and high total solids anaerobic digestion of chicken manure.. *Journal of Environmental Management*, **2022**, 315, 115192	7.9	1
56	Biochar soil application: soil improvement and pollution remediation. **2022**, 97-102		
55	Activated Carbon-Based Supercapacitors. *Advances in Material Research and Technology*, **2022**, 165-182	0.4	
54	Biochar from microalgae. **2022**, 613-637		
53	Sorption kinetics of 1,3,5-trinitrobenzene to biochars produced at various temperatures. *Biochar*, **2022**, 4,	10	0
52	Hydrogenation/Hydrodeoxygenation Selectivity Modulation by Cometal Addition to Palladium on Carbon-Coated Supports. *ACS Sustainable Chemistry and Engineering*,	8.3	1
51	Application of biochar for the removal of methylene blue from aquatic environments. **2022**, 29-76		
50	Modification of biomass-derived biochar: A practical approach towards development of sustainable CO2 adsorbent. *Biomass Conversion and Biorefinery*,	2.3	0

49	Recent Advances and Prospects of Biochar-based Adsorbents for Malachite Green Removal: A Comprehensive Review. *Chemistry Africa*,	2.2	0
48	Addition of biochar as thin preamble layer into sand filtration columns could improve the microplastics removal from water. *Water Research*, **2022**, 221, 118783	12.5	0
47	Production and Characterization of Biochar and Hybrid Produced from the Co-carbonization of Corn Husk and Low-Density Polyethylene Wastes. *Green Energy and Technology*, **2022**, 13-25	0.6	0
46	Design and Development of Onsite Biofilter Unit for Effective Remediation of Contaminants from Wastewater. *Clean - Soil, Air, Water*, 2100396	1.6	
45	Fruit quality and marketability of Okra (Abelmoschus esculentus (L.) Moench) as influenced by biochar rates and weeding regime. *International Journal of Pest Management*, 1-9	1.5	
44	Effects of biochar application on the loss characteristics of Cd from acidic soil under simulated rainfall conditions. *Environmental Science and Pollution Research*,	5.1	
43	Characterization of biochar and phosphorus adsorption in charnockite-originated soils. *Journal of the Saudi Society of Agricultural Sciences*, **2022**,	3.3	
42	Biochar amended microbial conversion of C1 gases to ethanol and butanol: Effects of biochar feedstock type and processing temperature. *Bioresource Technology*, **2022**, 360, 127573	11	0
41	Influence of indirectly heated steam-blown gasification process conditions on biochar physico-chemical properties. *Fuel Processing Technology*, **2022**, 235, 107347	7.2	0
40	The response of paddy with biochar application and legowo planting system at Tanjung Garbus Kampung Village. **2022**, 977, 012038		
39	Perspectives of Engineered Biochar for Environmental Applications: A Review. **2022**, 36, 7940-7986		2
38	Preparation of High-Performance Porous Carbon Materials by Citric Acid-Assisted Hydrothermal Carbonization of Bamboo and Their Application in Electrode Materials. **2022**, 36, 9303-9312		0
37	Sustainable carbon materials from the pyrolysis of lignocellulosic biomass. **2022**, 19, 100209		0
36	A green approach towards sorption of CO2 on waste derived biochar. **2022**, 214, 113954		0
35	Predictions of burnout times of biomass char using experimentally determined CO to CO2 ratio. **2022**, 450, 138404		0
34	The Effect of Activation on the Structure of Biochars Prepared from Wood and from Posidonia Oceanica: A Spectroscopic Study. **2022**, 2, 286-304		0
33	Characterization of Poultry Litter Biochar and Activated Biochar as a Soil Amendment for Valorization. **2022**, 2, 209-223		0
32	Production and Characterization of Biochar from Almond Shells. **2022**, 4, 854-864		2

31	Microwave-Assisted Chemically Modified Biochar for the Sequestration of Emerging Contaminants. **2022**, 283-310	0
30	Waste to catalyst: Role of agricultural waste in water and wastewater treatment. **2022**, 159762	0
29	Model for the Physical Activation of Biochar to Activated Carbon. **2022**, 105769	0
28	Physical-Chemical Characterization of Different Carbon-Based Sorbents for Environmental Applications. **2022**, 15, 7162	0
27	Enhancement of biogas production from individually or co-digested green algae Cheatomorpha linum using ultrasound and ozonation treated biochar. **2022**, 90, 106197	0
26	Solar pyrolysis of biomass - part II: The physicochemical structure evolution of char. **2023**, 333, 126474	1
25	Mechanistic investigation of char growth from lignin monomers during biomass utilisation. **2023**, 239, 107556	0
24	Coconut shell and husk biochar: A review of production and activation technology, economic, financial aspect and application. 0734242X2211271	0
23	Surface functional groups and degree of carbonization of selected chars from different processes and feedstock. **2022**, 17, e0277365	0
22	Removal of RhB from water by Fe-modified hydrochar and biochar An experimental evaluation supported by genetic programming. **2023**, 369, 120971	1
21	Reviewing the effect of pyrolysis temperature on the fourier-transform infrared spectra of biochars. **2022**, 25, 160-173	0
20	Improving the electrochemical desalination performance of chloride-doped polyaniline activated carbon electrode by tuning the synthesis method. **2022**, 141059	0
19	Pyrolysis of the anaerobic digestion solid by-product: Characterization of digestate decomposition and screening of the biochar use as soil amendment and as additive in anaerobic digestion. **2023**, 277, 116658	0
18	Sustainable production and application of biochar for energy storage and conversion. **2023**, 333-364	0
17	Production of biochar from biowaste and its application in wastewater treatment. **2023**, 149-193	0
16	Soil Organic Carbon Sequestration in Dryland Soils to Alleviate Impacts of Climate Change. **2023**, 221-245	0
15	Production and application of biochar. **2023**,	0
14	The effect of ferrous sulfate pretreatment on the optimal temperature for production of sugars during autothermal pyrolysis. **2023**, 171, 105966	0

13	Microalgae for biofuel: Isothermal pyrolysis of a fresh and a marine microalga with mass and energy assessment. **2023**, 14, 100474	0
12	Adsorption of CO2 using biochar - Review of the impact of gas mixtures and water on adsorption. **2023**, 11, 109643	0
11	A comprehensive review on low-cost waste-derived catalysts for environmental remediation. **2023**, 164, 112261	0
10	Improving Pharmaceuticals Removal at Wastewater Treatment Plants Using Biochar: A Review.	0
9	Sustainable management of unavoidable biomass wastes. **2023**, 1, 100005	1
8	Carbon nano-materials (CNMs) derived from biomass for energy storage applications: a review.	0
7	Evidence for the formation of fused aromatic ring structures in an organic soil profile in the early diagenesis.	0
6	Biochar from Grapevine-Pruning Residues Is Affected by Grapevine Rootstock and Pyrolysis Temperature. **2023**, 15, 4851	0
5	Facile Functionalization of Charcoal by a Green Approach. **2023**, 13, 476	0
4	Bamboo: A Sustainable Alternative for Biochar Production. **2023**, 265-295	0
3	Use of Plasticized Biochar Intermediate for Producing Biocarbons with Improved Mechanical Properties. **2023**, 11, 5845-5857	0
2	Assessment of the effects of biochar on biogas production during anaerobic digestion of aqueous pyrolysis condensate: a circular economy approach. **2023**, 109982	0
1	The Potential of Waste Phloem Fraction of Quercus cerris Bark in Biochar Production. **2023**, 10, 71	0