



News from the International Biochar Initiative

IBI is a non-profit organization that provides a platform for fostering stakeholder collaboration, good industry practices, and environmental and ethical standards to support biochar systems that are safe and economically viable.

Help put the Earth **Back in the Black**

August 2017 News from the International Biochar Initiative

From the Chairman

I hope you were able to join us for [this month's webinar](#) in which Kathleen Draper and I covered the status and trends in the biochar industry. If not, the video can still be viewed at your convenience. It may broaden your perspective on the many potential value streams that biochar offers. Much more information along those lines will be out in print next year, including a book by Albert Bates and Kathleen and an academic volume on *Non-Soil Applications of Biochar*.



Meanwhile, there are plenty of exciting developments going on now. In this month's newsletter, we have highlighted what looks like a major advance in applying biochar as an organic soil amendment brought to our attention by IBI member Dr. Claudia Kamman, one of the co-authors of the paper on Nepalese field trials that leads off our [regional updates](#). August also saw the inaugural Australia New Zealand Biochar Conference take place. We will be excited to share more news from that event as it comes in.

I would also like to ask for help in carrying out IBI's ever-increasing volume of work. Presently, we are seeking a [board member to take charge of fundraising](#) for the organization. We also need volunteers to help tell the biochar story. This could include writing about biochar research in newsletters, factsheets, on the web and through social media, and translating those stories into local languages. You can also help build regional biochar networks, such as the newly founded [Biochar Action Council](#) in West Virginia, so we can learn from each other. We can only do as much as we are all willing contribute. Whatever your interests - research and education, farming, production, marketing or policy - tell us how you would like to contribute. Contact us at <mailto:info@biochar-international.org>

Tom Miles

Chairman, IBI Board of Directors

Biochar related jobs, scholarships, and volunteer opportunities

[Division President \(Biochar\)](#) at U.S. East coast manufacturer of ecologically-friendly agricultural soil enhancers with operations in Pennsylvania and North Carolina. Key responsibilities include business development, production and supply chain management, marketing, contracting, and staffing. Qualifications include: Sales and marketing expertise and experience, graduate degree in business or engineering, charcoal industry knowledge, executive talent, travel up to 75%. Salary up to \$200K, plus bonus.

[Research Fellow in LCA and Soil Carbon](#) at Cranfield University, Bedfordshire, UK. Consequential life cycle assessments (LCA) of soil C technologies able to sequester CO₂ emissions from the atmosphere, including the use of biochar. Three-year contract. £32,094 per annum. Apply by September 20, 2017.

[PhD Student Researcher in Chemistry](#) at Umeå University, Sweden. The temporary, full-time job will include evaluation of the chemical and physical properties of feedstocks and biochars, the influence of functionalization techniques and additives, and of the sequential performance of the biochars in water treatment and soil amendment. Application deadline: September 15, 2017

[Agricultural Systems Engineer](#) at V-Grid Energy Systems near Fresno, California, responsible for installation and initial operation of an advanced biomass to electricity and biocarbon production system at large farms. Salary: \$125K to \$150K.

[Staff Accountant](#) in Colorado. Part-time (up to 25 hrs./wk.) for a diversified wood-product manufacturing company which makes biochar and other products from local beetle-kill pine. Salary: \$19.00 to \$25.00 /hour.

[PhD Technical Writer/Editor](#) to rewrite a scientific paper about thermal pyrolysis according to reviewers' comments.

IBI Volunteer Opportunity: Fundraiser on the IBI Board of Directors

IBI is looking to appoint an experienced Board Member at Large that is interested in spearheading IBI's Fundraising efforts. This person should have experience with identifying and obtaining grants related to agriculture, renewable energy and/or climate change on behalf of either non-profit or academic institutions. No geographic preference is required, although a very strong capability in verbal and written English is necessary. For those interested, please send a letter of interest as well as an outline of relevant experience to info@biochar-international.org.

Biochar Webinar Series

The [August IBI biochar webinar](#) was a review of IBI's past, present and future as well as a look at the biochar industry as well. IBI Board Chair Tom Miles and Board Member Kathleen Draper provided insight to where IBI and biochar have traditionally focused (e.g. soil amendments and carbon sequestration) and discussed some of the newer development and opportunities within the industry. More than 100 members from 20+ countries registered for the event!

Previous webinars are accessible to IBI members for **free** via the Members Only page a few days after the Webinars take place. Non-members that would like to view previous 2017 webinars, may pay a one-time fee of \$40. Further information is available on our [Webinars Series page](#).

IBI Membership

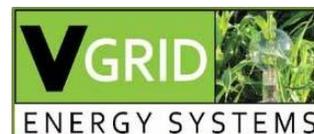
It has come to our attention that certain members are having difficulties in renewing their membership on-line. Should you experience any difficulties, please contact Brian Schorr at: BSchorr@ttcorp.com.

New IBI Business Members

Note: bios below were provided by members (or from websites) and not authored by IBI

V-Grid Energy Systems

V-Grid Energy Systems is a developer of very affordable on-demand renewable power generation for crop irrigation. Its founders are the patent office registered inventors of the biochar product that won a 2015 Edison Gold Medal and soon became the number 1 selling biochar product on Amazon. V-Grid bioenergy servers can produce an even more advanced form of biochar which would otherwise be too expensive to make. V-Grid Energy Systems believes its



technology can significantly upgrade farm soil as well as make ultra low cost electricity. For more information, visit their website at: www.vgridenergy.com.

Wind River Biomass Utility LLC

Wind River Biomass Utility LLC is a combined heat and power (CHP) utility, based on wood chips from forest restoration harvests, burned in a gasifier/burner and driving Organic Rankine Cycle turbine/generator via a hot-oil heat-exchanger system. Located on 25 acres of the Wind River Business Park in Hemlock, WA, the site has a 300 gpm well, 15 acres of contiguous nursery fields, road access, broadband, and under-utilized 12.5 kV PUD service.



Wind River Biomass
Utility LLC

Membership Opportunities for Least Developed Country residents

IBI is seeking to expand its membership to include those living in the UN designated Least Developed Countries ([LDCs](#)). We are also interested in expanding the information about biochar activities in these 48 countries. As we understand that the IBI membership fee for developing country residents can be a steep barrier to membership, we would like to offer the opportunity of **providing information to IBI about biochar projects or other activities in exchange for an annual membership**. For those interested in more information on this service in exchange for membership opportunity, please send an email to: info@biochar-international.org.

We encourage all those that have yet to renew their membership, to do so now via the [IBI website](#).

Sponsor a member

Would you like to help students, researchers or project developers from the developing world get more connected to the biochar community? Give the gift of IBI membership! We recognize that individuals from certain countries may not be able to afford IBI membership and are seeking ways to provide improved networking and knowledge sharing with this community. For this reason, we would like to facilitate sponsorship for individuals from the developing world to enable them to receive IBI member benefits.

If you are interested in sponsoring the membership fee of an individual from a developing world country OR if you are interested in being sponsored, please contact IBI at info@biochar-international.org.

The IBI Online Biochar Training Course is Ongoing

Gain in-depth knowledge on biochar and biochar systems. Register for IBI's online course, Biochar Training for Environmental Sustainability and Economic Development. This ten week, ongoing course provides participants an intensive training series on all aspects of biochar, presented by leading biochar experts. Course materials are presented in a user-friendly online format. Participants can access the course at their convenience over ten weeks and will receive a certificate of completion at the conclusion of the course.

Course materials are based on presentations from the June 2014 in-person biochar training course titled, "Biochar for Environmental Sustainability and Economic Development," hosted by the University of Santiago de Compostela, Spain, and developed and presented by IBI and collaborators. For more information on member and non-member pricing and registration, please see: www.biochar-international.org/online_course

Regional Updates

Southern Asia: Twenty-one field trials conducted in Nepal revealed that low-dosage (~1 ton/ha) root zone application of organic biochar-based fertilizers (biochar + cow urine) caused, on average, over

100% yield increases in rather fertile silt loam soils compared with traditional organic fertilization, mineral NPK, or NPK-biochar fertilization. **The results open new pathways for optimizing organic farming** and improving on-farm nutrient cycling. Authors of [the report, published in Land Degradation & Development](#), hope researchers using soils all over the world will join in helping find the pathways for using **small doses of biochar** to achieve optimum returns-on-investment through higher crop yields.

Dr. Dinesh Mohan, a professor at New Delhi's Jawaharlal Nehru University, has been named Fellow of the Royal Society of Chemistry. [Dr. Mohan](#) has researched biochar in agriculture and water purification for two decades and wants to see his reactor for making biochar scaled up and deployed at the community level. In June, Dr. Mohan began a 3-year adjunct professorship at Mississippi State University's (USA) Department of Chemistry.

United States: West Virginia is big on biochar following the [Appalachian Biochar Conference](#), held in July. A Biochar Action Council has been established which will initiate collaborative efforts across the Mid-Atlantic region and beyond. Teleconferenced meetings are held the 2nd Thursday of each month at 10:00 a.m. EST and are open to all interested. The call-in number is (605) 472-5814 code 601-019-943 Contact [Tina Metzger](#) to be included in email updates.

Feedstock for biochar may be among the many benefits of [cultivating giant kelp](#). A non-profit organization in Connecticut, building on longstanding aquacultural practices used in China, is promoting the oceanic algal vine for its dense and rapid growth, hence significant carbon sequestration potential.

Farmers in California may be eligible for [demonstration project grants](#) up to \$50,000 under the state's [Healthy Soils Program](#). Eligible agricultural management practices include compost application (which may include composts to which biochar was added *during the composting process*, per [CDFA instructions](#)). [Grants are also available as incentives](#) for building healthy soil. Applications are due by September 19, 2017.

[Cool Planet is showing convincing results](#) in its ongoing trials of its Cool Terra [engineered](#) bio-carbon. In its third season of trials, Cool Planet is executing the most extensive program yet with more than 120 live field trails with third-party independent and university researchers. The trials span the spectrum of crops across the United States from fruits and vegetables to commodity row crops.

[Colorado](#) is seeing exponential growth in its biochar business, currently generating \$1.5 M in revenues.



U.S. Forest Service soil scientist Jim Archuleta is working on [making biochar in the Umatilla National Forest](#) of Washington and Oregon with a high capacity air curtain burner designed with his colleague, Debbie Page-Dumroese. Teaming with IBI member Stephen Machado, lead scientist at Oregon State University's Columbia Basin Agricultural Research Center, Archuleta is hoping the biochar can benefit the area's dry land wheat crops.

Oregon Biochar Solutions is marketing their biochar as a replacement for vermiculite in a tree seedling starting mix. Photo courtesy of Tom Miles from OBS's booth at the Farwest horticultural show held in August.



South Eastern Asia: The inaugural [Australia New Zealand Biochar Conference](#), held in August, contained many demonstrations and presentations that can be appreciated only by seeing them yourself. The wonderful thing is, you still can! The [ANZBC Facebook page](#) is full of informative photos and videos and [the recorded sessions](#) are available for a small fee.

Biochar as a soil amendment is gaining interest in the Philippines with the help of [Dr. Gina Pangga's research and stove development work](#). She hopes the next step will bring more funding from the Department of Science and Technology-National Research Council of the Philippines (DOST-NRCP) to scale up her design to make biochar by the ton.

Upcoming Calendar Events

- [Regenerative Agriculture & Socio-Ecological Justice to Heal the Earth](#), 7 – 9 September, 2017. Richmond, California.
- 2nd Annual Conference of the [Biochar Initiative of Nigeria](#), 11 - 15 September, 2017. University of Ibadan, Ibadan, 200284, Nigeria
- [6th Biennial ECHO Asia Agriculture and Community Development Conference](#), 3 – 6 October, 2017, Chiang Mai, Thailand covering practical techniques for smallholder farmers and gardeners.
- [Stockholm Biochar Project study tour](#), 9 – 11 October, 2017, Stockholm, Sweden. IBI has worked with Mattias Gustafsson, Project Manager and Bjorn Embren, Stockholm's Tree Officer to put together a 2½ day program that will provide attendees with more insight on the project that was briefed in the [June IBI webinar](#). The tour is on if there are at least 12 attendees [registered by 15 September](#).
- [Biochar School](#) covering the principles of biochar and its horticultural uses, 12 – 13 October, Florence, Italy.
- [2nd Second Global Soil Biodiversity Conference](#), October 15-19, 2017, Nanjing, China. Topic 15 is the *Biochar for soil biota and biodiversity* session. Session contact for abstract questions is: Dr. Genxing Pan. Email: panggenxing@aliyun.com; gxpan1@hotmail.com
- [Défis industriels et environnementaux de la filière du biochar](#) au Québec (*Industrial and Environmental Challenges of the Biochar Sector in Quebec*) Oct 16 – 17, 2017 ; Trois Rivieres, Quebec, Canada
- [The XII Brazilian Meeting of Humic Substances and Natural Organic Matter](#), Sinop, MT, Brazil, October 16 – 20, 2017. Pre-congress workshop on "Pyrogenic Biomass" including: Biochar and bioremediation of xenobiotics; Biochar and its mixtures in the availability of nutrients; Hydrothermal coal and its applications; CTC and CRA in biochar; Pyrolysis of agroindustrial residues; Development of analytical techniques for the characterization of pyrogenic biomass; and legislation and analytical protocols for biochar.
- Annual meeting of the [Tri-Societies – Agronomy Society of America -- Crop Science Society -- Soil Science Society of America \(ASA-CSSA-SSSA\)](#) with more than 4,000 scientists, professionals, educators, and students in Tampa, Florida, on Oct. 22-25, 2017 has the theme

"Managing Global Resources for a Secure Future," as well as the annual "show me the science" gathering of the ASA [Biochar Community](#) members.

- [Washington Organic Recycling Council \(WORC\) Annual Conference](#), "Bringing Soil Back to Life," November 14 - 15, 2017, Blaine, WA, U.S.A.
- The 2nd **China- Asian Biochar Workshop** is scheduled to take place during November 18-21, 2017. The theme of the workshop will be **Biochar Production and Application for Green Agriculture-from Technology to Viable Systems**. The workshop is aimed to enhance a joint exchange and sharing of the biochar developments between China and Asian countries and beyond, and an access to novel biochar technologies and viable systems for safe recycling of bio-waste for green development. The venue of this workshop will be in **Wanda Hotel in Jinhua Municipality**, Zhejiang Province, China, which is a green city with a fast growing bioeconomy. Further details on the workshop can be found [here](#).
- [8th International Conference on Biofuels, Bioenergy & Bioeconomy](#), Dec 4 – 5, 2017, Sao Paulo, Brazil. Presentations from more than 30 countries and 100 organizations.
- [Biochar Production, Characterization, and Environmental Applications](#) session at the Fall Conference of the American Geophysical Union, December 11-15, New Orleans, Louisiana. Full conference details at: <http://fallmeeting.agu.org/2017/>.
- [4th Korea Biochar Research Center International Biochar Conference](#) : SMART Biochar Technology: A Shifting Paradigm Towards Advanced Materials and Healthcare Research – part of BEEM 2018, June 10 – 13, 2018; Deadline for Abstract Submission: January 31, 2018.

SAVE THE DATE: The next USBI Conference has been scheduled for August 20 – 23, 2018 and will be hosted at the Chase Center in Wilmington, DE. Further details will be forthcoming soon.

See the IBI Calendar page for more events. To add an event to the calendar, email the information to the IBI newsletter editor, [Robert W. Gillett](#).

A Selection of Recently Published Biochar-related Resources

*Citations are from last month's new 'biochar' entries in the ISI Web of Science Core Collection unless preceded by **

*Sandermana, Jonathan; Hengelo, Tommila; Fiskian, Gregory J., **Soil carbon** debt of 12,000 years of human land use, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, [Published online](#) before print on August 21, 2017.

*Page-Dumroese, Deborah S.; Busse, Matt D.; Archuleta, James G.; McAvoy, Darren; Roussel, Eric, Methods to Reduce **Forest Residue** Volume after Timber Harvesting and Produce Black Carbon, SCIENTIFICA (CAIRO). [Published online](#) Mar 9, 2017.

Sima, XF; Wang, YY; Shen, XC; Jing, XR; Tian, LJ; Yu, HQ; Jiang, H, Robust **biochar-assisted alleviation of membrane fouling** in MBRs by indirect mechanism, SEPARATION AND PURIFICATION TECHNOLOGY, 2017, 184, 195-204

Fornes, F; Belda, RM; de Cordova, PF; Cebolla-Cornejo, J, Assessment of biochar and hydrochar as minor to major constituents of **growing media for containerized tomato production**, JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE, 2017, 97, 3675-3684

Agbna, GHD; She, DL; Liu, ZP; Elshaikh, NA; Shao, GC; Timm, LC, Effects of deficit irrigation and biochar addition on the growth, yield, and quality of **tomato**, SCIENTIA HORTICULTURAE, 2017, 222, 90-101

Lyu, HH; Tang, JC; Huang, Y; Gai, LS; Zeng, EY; Liber, K; Gong, YY, **Removal of hexavalent chromium** from aqueous solutions by a novel biochar supported nanoscale iron sulfide composite, CHEMICAL ENGINEERING JOURNAL, 2017, 322, 516 - 524

Ahmed, MB; Zhou, JL; Ngo, HH; Guo, WS; Johir, MAH; Sornalingam, K; Belhaj, D; Kallel, M, Nano-Fe-0 immobilized onto functionalized biochar gaining excellent stability during sorption and reduction of **chloramphenicol** via transforming to reusable magnetic composite, CHEMICAL ENGINEERING JOURNAL, 2017, 322, 571-581

Kizito, S; Lv, T; Wu, SB; Ajmal, Z; Luo, HZ; Dong, RJ, **Treatment of anaerobic digested effluent** in biochar-packed vertical flow constructed wetland columns: Role of media and tidal operation, SCIENCE OF THE TOTAL ENVIRONMENT, 2017, 592, 197-205

Liu, S; Xu, WH; Liu, YG; Tan, XF; Zeng, GM; Li, X; Liang, J; Zhou, Z; Yan, ZL; Cai, XX, Facile synthesis of Cu(II) impregnated biochar with enhanced adsorption activity for the **removal of doxycycline hydrochloride from water**, SCIENCE OF THE TOTAL ENVIRONMENT, 2017, 592, 546-553

Wang, H; Chu, YX; Fang, CR; Huang, F; Song, YL; Xue, XD, **Sorption of tetracycline** on biochar derived from rice straw under different temperatures, PLOS ONE, 2017, 12, e0182776

He, PJ; Yu, QF; Zhang, H; Shao, LM; Lu, F, **Removal of Copper (II)** by Biochar Mediated by Dissolved Organic Matter, SCIENTIFIC REPORTS, 2017, 7, 7091

Sima, XF; Shen, XC; Fang, T; Yu, HQ; Jiang, H., Efficiently **reducing the plant growth inhibition of CuO NPs** using rice husk-derived biochar: experimental demonstration and mechanism investigation, ENVIRONMENTAL SCIENCE-NANO, 2017, 4, 1722-1732

Qadeer, S; Anjum, M; Khalid, A; Waqas, M; Batool, A; Mahmood, T., A Dialogue on Perspectives of **Biochar Applications and Its Environmental Risks**, WATER AIR AND SOIL POLLUTION, 2017, 228-281

Selvanathan, M; Yann, KT; Chung, CH; Selvarajoo, A; Arumugasamy, SK; Sethu, V., **Adsorption of Copper(II)** Ion from Aqueous Solution Using Biochar Derived from Rambutan (Nephelium lappaceum) Peel: Feedforward Neural Network Modelling Study, WATER AIR AND SOIL POLLUTION, 2017, 228, -299

Pressler, Y; Foster, EJ; Moore, JC; Cotrufo, MF, Coupled biochar amendment and **limited irrigation** strategies do not affect a degraded soil food web in a maize agroecosystem, compared to the native grassland, GLOBAL CHANGE BIOLOGY BIOENERGY, 2017, 9, 1344-1355

Jeon, P; Lee, ME; Baek, K., **Adsorption and photocatalytic activity of biochar with graphitic carbon nitride (g-C₃N₄)**, JOURNAL OF THE TAIWAN INSTITUTE OF CHEMICAL ENGINEERS, 2017, 77, 244-249

Trinh, BS; Werner, D; Reid, BJ, Application of a full-scale wood gasification biochar as a soil improver to **reduce organic pollutant leaching** risks, JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY, 2017, 92, 1928-1937

Janczak, D; Malinska, K; Czekala, W; Caceres, R; Lewicki, A; Dach, J, Biochar to **reduce ammonia emissions in gaseous and liquid phase during composting of poultry manure** with wheat straw, WASTE MANAGEMENT, 2017, 66, 36-45

Hung, CY; Tsai, WT; Chen, JW; Lin, YQ; Chang, YM, Characterization of biochar prepared from **biogas digestate**, WASTE MANAGEMENT, 2017, 66, 53-60

Zhu, XM; Chen, BL; Zhu, LZ; Xing, BS, Effects and mechanisms of **biochar-microbe interactions in soil improvement and pollution remediation**: A review, ENVIRONMENTAL POLLUTION, 2017, 227, 98-115

Wang, L; Meng, J; Li, ZT; Liu, XM; Xia, F; Xu, JM, First "charosphere" view towards **the transport and transformation of Cd** with addition of manure derived biochar, ENVIRONMENTAL POLLUTION, 2017, 227, 175-182

Oleszczuk, P; Godlewska, P; Reible, DD; Kraska, P, Bioaccessibility of **polycyclic aromatic hydrocarbons** in activated carbon or biochar amended vegetated (*Salix viminalis*) soil, ENVIRONMENTAL POLLUTION, 2017, 227, 406-413

Rehman, MZU; Khalid, H; Akmal, F; Ali, S; Rizwan, M; Qayyum, MF; Iqbal, M; Khalid, MU; Azhar, M, Effect of limestone, lignite and biochar applied alone and combined on **cadmium uptake** in wheat and rice under rotation in an effluent irrigated field, ENVIRONMENTAL POLLUTION, 2017, 227, 560-568

Cho, DW; Kwon, G; Yoon, K; Tsang, YF; Ok, YS; Kwon, EE; Song, H, **Simultaneous production of syngas and magnetic biochar** via pyrolysis of paper mill sludge using CO₂ as reaction medium, ENERGY CONVERSION AND MANAGEMENT, 2017, 145, 1 - 9

Jung, JM; Lee, J; Choi, D; Oh, JI; Lee, SR; Kim, JK; Kwon, EE, Biochar as porous media for thermally-induced non-catalytic transesterification to **synthesize fatty acid ethyl esters from coconut oil**, ENERGY CONVERSION AND MANAGEMENT, 2017, 145, 308-313

Fungo, B; Lehmann, J; Kalbitz, K; Tenywa, M; Thiongo, M; Neufeldt, H, **Emissions intensity and carbon stocks of a tropical Ultisol** after amendment with Tithonia green manure, urea and biochar, FIELD CROPS RESEARCH, 2017, 209, 179-188

Munoz, E; Curaqueo, G; Cea, M; Vera, L; Navia, R, **Environmental hotspots in the life cycle of a biochar-soil system**, JOURNAL OF CLEANER PRODUCTION, 2017, 158, 1-7

Dai, LC; Tan, FR; Li, H; Zhu, NM; He, MX; Zhu, QL; Hu, GQ; Wang, L; Zhao, J, Calcium-rich biochar from the **pyrolysis of crab shell for phosphorus removal**, JOURNAL OF ENVIRONMENTAL MANAGEMENT, 2017, 198, 70-74

Awasthi, MK; Wang, Q; Chen, HY; Wang, MJ; Ren, XN; Zhao, JC; Li, J; Guo, D; Li, DS; Awasthi, SK; Sun, XN; Zhang, ZQ, Evaluation of biochar amended **biosolids** co-composting to improve the nutrient transformation and its correlation as a function for the production of nutrient-rich compost, BIORESOURCE TECHNOLOGY, 2017, 237, 156-166

Janus, A; Goulas, A; Pelfrene, A; Douay, F; Waterlot, C, **Determination of PAHs** by ultra fast liquid chromatography using a core-shell technology - Application to their determination after using biochar as adsorbent, MEASUREMENT, 2017, 106, 137-142

Liu, YH; He, PJ; Shao, LM; Zhang, H; Lu, F, Significant **enhancement by biochar of caproate production** via chain elongation, WATER RESEARCH, 2017, 119, 150-159

Ahmed, MB; Zhou, JL; Ngo, HH; Guo, WS; Johir, MA; Belhaj, D, Competitive sorption affinity of **sulfonamides and chloramphenicol antibiotics** toward functionalized biochar for water and **wastewater treatment**, BIORESOURCE TECHNOLOGY, 2017, 238, 306 -312

Zhang, C; Shan, BQ; Tang, WZ; Zhu, YY, Comparison of **cadmium and lead sorption** by *Phyllostachys pubescens* biochar produced under a low-oxygen pyrolysis atmosphere, BIORESOURCE TECHNOLOGY, 2017, 238, 352-360

Ifthikar, J; Wang, J; Wang, QL; Wang, T; Wang, HB; Khan, A; Jawa, d, A; Sun, TT; Jiao, X; Chen, ZQ, Highly Efficient **Lead Distribution by Magnetic Sewage Sludge Biochar**: Sorption Mechanisms and Bench Applications, BIORESOURCE TECHNOLOGY, 2017, 238, 399-406

Awasthi, MK; Zhang, ZQ; Wang, Q; Shen, F; Li, RH; Li, DS; Ren, XN; Wang, MJ; Chen, HY; Zhao, JC, New insight with the effects of biochar amendment on bacterial diversity as indicators of biomarkers support the thermophilic phase during **sewage sludge composting**, BIORESOURCE TECHNOLOGY, 2017, 238, 589-601

Trakal, L; Raya-Moreno, I; Mitchell, K; Beesley, L, **Stabilization of metal(loid)s in two contaminated agricultural soils**: Comparing biochar to its non-pyrolysed source material, CHEMOSPHERE, 2017, 181, 150-159

Anderson, CG; Joshi, G; Bair, DA; Oriol, C; He, GC; Parikh, SJ; Denison, MS; Scow, KM, Use of nuclear receptor luciferase-based bioassays to detect **endocrine active chemicals in a biosolids-biochar amended soil**, CHEMOSPHERE, 2017, 181, 160-167

Liang, J; Yang, ZX; Tang, L; Zeng, GM; Yu, M; Li, XD; Wu, HP; Qian, YY; Li, XM; Luo, YA, Changes in **heavy metal mobility and availability** from contaminated wetland soil remediated with combined biochar-compost, CHEMOSPHERE, 2017, 181, 281-288

Ngatia, LW; Hsieh, YP; Nemours, D; Fu, R; Taylor, RW, Potential **phosphorus eutrophication mitigation** strategy: Biochar carbon composition, thermal stability and pH influence phosphorus sorption, CHEMOSPHERE, 2017, 180, 201-211

Tan, ZX; Lin, CSK; Ji, XY; Rainey, TJ, **Returning biochar to fields: A review**, APPLIED SOIL ECOLOGY, 2017, 116, 1-11

Liu, SN; Meng, J; Jiang, LL; Yang, X; Lan, Y; Cheng, XY; Chen, WF, Rice husk biochar impacts **soil phosphorous availability, phosphatase activities and bacterial community** characteristics in three different soil types, APPLIED SOIL ECOLOGY, 2017, 116, 12-22

International Biochar Initiative www.biochar-international.org info@biochar-international.org

Follow us on [Twitter](#)  & Like us on [Facebook](#) 