



July 2017 News from the International Biochar Initiative

Biochar related jobs, scholarships or volunteer opportunities

[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

[Junior Research Fellow](#) at Indian Institute of Technology Guwahati. Qualifications: MTech/MSc in Biotechnology/Microbiology/Agri. Microbiology/Life Sciences, Duration: 11 Months, Project entitled: "Assessing the Bio-availability of nutrients and reduction of heavy metals in soils amended with inorganic and organic wastes in the presence of AM Fungi and biochar"

Make Biochar (for one week) in Oregon

Strong workers needed who can move big branches and logs, throw them into biochar kilns, handle a fire hose, and will be comfortable with using rakes and shovels to tend a fire. This 5-day project will take place near Drew, Oregon beginning as early as October 16, 2017. For each day worked you will receive a cubic yard of biochar! Your hard work will support the Drew Veg Biochar Project which Kelpie Wilson covered in July's webinar. Sign up using the link at the [Umpqua Biochar Education Team website](#).

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.

MIT Climate CoLab launches 7 contests with One \$10K grand prize

The contest seeks progress towards detailed implementation plans which answer the question: What initiatives, policies, and technologies can significantly reduce greenhouse gas emissions? People from all walks of life—for example, policymakers, artists, engineers, students, or retired professionals, among others—all have valuable insights to offer and are invited to enter the contests on their own or with a team. Alternatively, they are welcome to form teams with other members of the Climate CoLab community. Deadline for proposals is September 10, 2017. More info at <https://climatecolab.org/contests>.

Biochar Webinar Series

The August webinar topic will be 'Building the Biochar Industry' and will feature select IBI Board and Business Members. This webinar will cover the current state of the biochar market, industry trends, as well as market opportunities and barriers. This webinar is also intended to be a forum for members and non-members to provide input via polls and questions as to how IBI can best help build the biochar

industry. The webinar is tentatively scheduled for August 23rd from 1:00 – 2:30 pm EDT. Further details will be sent out shortly.

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](#).

Regional Updates

South America: Biochar for Sustainable Soils (B4SS), a collaboration of [Starfish Initiatives](#), is offering a trip to Peru to the winner of the [2018 Biochar Adventure Experience](#) random drawing. Dr Ruy Anaya de la Rosa, B4SS Project Director, wishes to use this opportunity to share practical and important knowledge coming into focus from the last 2-3 years of research in Peru.

Europe: Charred manures may soon be allowed to be labeled and [sold as phosphate fertilizers in the EU](#) per a recommendation of the European Parliament's Internal Market Committee (IMCO).

United States: The [Lebanon \(TN\) Gasification Initiative](#), has been awarded the 2017 Governor's Environmental Stewardship Award for Energy and Renewable Resources after they commissioned the largest downdraft gasifier in the world which coproduces electricity and 1.6 tons/day of biochar.

The Redwood Forest Foundation, Inc. (RFFI) in northern California has begun to deliver wood-derived "[North Coast Biochar](#)" after a successful start-up of their semi-mobile pyrolysis unit. RFFI hopes to use the grant-funded project to demonstrate the economic, ecological, and sociological sustainability of charring forest thinnings to landowners in their area. North Coast Biochar is sold in bulk through locally owned and operated Willits Soil Co.

Canada: The [University of Lethbridge](#) (Alberta) has been awarded \$1.1 million in federal funding to coordinate a [multi-year study](#) examining whether small amounts of biochar added to cattle feed improves the efficiency of digestion and thereby reduces the amount of methane produced. Field trials will then evaluate the char-laden manure's effects on nutrient cycling, microbial activity and carbon sequestration in agricultural crops. A final economic analysis will consider any differences in livestock growth rates, days on feed, total yardage costs, feed costs and crop production efficiency. [Cool Planet](#) is supplying the biochar.

Africa: NGO Radio Lifeline's biochar trials with coffee growers in Rwanda were so successful that they have moved on to conducting trials in Tanzania. Early [results there are also promising](#).

South Eastern Asia: Awareness is growing among Vietnam's many farming communities as [several field studies](#) show the benefits of biochar use. One of the newer studies is being conducted in the highlands of Bac Kan province under the international [Biochar for Sustainable Soils \(B4SS\)](#) program.

Upcoming Calendar Events

- [BIOCHAR AND SLOW-SAND BIOFILTRATION FOR POTABLE WATER](#) - 3 DAY INTENSIVE - AUGUST 1-3, 2017. Location: San Miguel de Allende, Mexico. Tuition: \$500. The course is presented by Caminos de Agua ([caminosdeagua.org](#)) and Aqueous Solutions ([aqsolutions.org](#)).
- [Ecological Society of America](#) Annual Meeting, August 6 – 11, 2017, Portland, Oregon. Nearly four thousand scientific presentations on breaking research and new ecological concepts, at least six of which feature biochar.

- [Australia New Zealand Biochar Conference](#) August 10 – 12, 2017, Tweed, Australia. The aims and objectives of ANZBC17 are to bring together Scientists & Growers to bridge the gap between fundamental science, applied science & commercial applications, to unite the various Biochar groups from each State in Australia & New Zealand, to showcase the very latest technology to match the biomass source, value added bio-products, methods of applications and scientific results and commercial trial methods and results. Conference themes include: Technology & Production for matching sustainable biomass sources; Value added Bio-Products; Applied Science (Discoveries & Results); Commercial Applications (Methods & Results). Additional info can be found [here](#), [here](#), and [here](#)
- [Biochar Field Tour / Open House](#) August 11, 2017, Bayfield, ON, Canada. Learn how biochar influences soil health. Registration deadline: July 20. Uwsoilbiochar@gmail.com
- [Biochar: Production, Characterization & Applications](#), Alba, Italy, Hotel Calissano, **August 20-25, 2017**
- [International Symposium on Growing Media, Soilless Cultivation, and Compost Utilization in Horticulture](#), **August 20-25**, in Portland OR. Attendees are welcome to submit abstracts and requests to give talks/presentations (or posters) during the meeting as well if desired.
- [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.
- [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: pangexing@aliyun.com; gxpan1@hotmail.com
- [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.
- 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 biowastes 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 Research and Resources

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

Shang, JG; Zong, MZ; Yu, Y; Kong, XR; Du, Q; Liao, QJH, **Removal of chromium (VI) from water** using nanoscale zero valent iron particles supported on herb-residue biochar, JOURNAL OF ENVIRONMENTAL MANAGEMENT, 2017, 197, 331-337

Shankar, V; Heo, J; Al-Hamadani, YAJ; Park, CM; Chu, KH; Yoon, Y, Evaluation of **biochar-ultrafiltration membrane processes for humic acid removal** under various hydrodynamic, pH, ionic strength, and pressure conditions, JOURNAL OF ENVIRONMENTAL MANAGEMENT, 2017, 197, 610-618

Gwenzi, W; Chaukura, N; Noubactep, C; Mukome, FND, **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

Awad, YM; Lee, SE; Ahmed, MBM; Vu, NT; Farooq, M; Kim, IS; Kim, HS; Vithanage, M; Usman, ARA; Al-Wabel, M; Meers, E; Kwon, EE; Ok, YS, **Biochar, a potential hydroponic growth substrate**, enhances the nutritional status and growth of leafy vegetables, JOURNAL OF CLEANER PRODUCTION, 2017, 156, 581-588

Chen, L; Chen, XL; Zhou, CH; Yang, HM; Ji, SF; Tong, DS; Zhong, ZK; Yu, WH; Chu, MQ, Environmental-friendly **montmorillonite-biochar composites**: Facile production and tunable adsorption-release of ammonium and phosphate, JOURNAL OF CLEANER PRODUCTION, 2017, 156, 648-659

Tang, XY; Huang, WD; Guo, JJ; Yang, Y; Tao, R; Feng, X, Use of **Fe-Impregnated Biochar to Efficiently Sorb Chlorpyrifos, Reduce Uptake by Allium fistulosum L.**, and Enhance Microbial Community Diversity, JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, 2017, 65, 5238-5243

Cheng, GH; Sun, MY; Lu, JR; Ge, XL; Zhang, HH; Xu, XH; Lou, LP; Lin, Q, Role of biochar in biodegradation of **nonylphenol in sediment**: Increasing microbial activity versus decreasing bioavailability, SCIENTIFIC REPORTS, 2017, 7

Lisowski, P; Colmenares, JC; Masek, O; Lisowski, W; Lisovtyskiy, D; Kaminska, A; Lomot, D, Dual Functionality of **TiO₂/Biochar Hybrid Materials**: Photocatalytic Phenol Degradation in the Liquid Phase

and Selective Oxidation of Methanol in the Gas Phase, ACS SUSTAINABLE CHEMISTRY & ENGINEERING, 2017, 5, 6274-6287

Obia, A; Borresen, T; Martinsen, V; Cornelissen, G; Mulder, J, Effect of biochar on **crust formation, penetration resistance and hydraulic properties** of two coarse-textured tropical soils, SOIL & TILLAGE RESEARCH, 2017, 170, 114-121

Ulrich, BA; Loehnert, M; Higgins, CP, Improved **contaminant removal in vegetated stormwater biofilters** amended with biochar, ENVIRONMENTAL SCIENCE-WATER RESEARCH & TECHNOLOGY, 2017, 3, 726-734

Ramzani, PMA; Shan, L; Anjum, S; Khan, WUD; Hu, RG; Iqbal, M; Virk, ZA; Kausar, S, **Improved quinoa growth, physiological response, and seed nutritional quality** in three soils having different stresses by the application of acidified biochar and compost, PLANT PHYSIOLOGY AND BIOCHEMISTRY, 2017, 116, 127-138

Kim, D; Lee, K; Bae, D; Park, KY, Characterizations of biochar from **hydrothermal carbonization of exhausted coffee residue**, JOURNAL OF MATERIAL CYCLES AND WASTE MANAGEMENT, 2017, 19, 1036-1043

Mia, SM; Singh, B; Dijkstra, FA, **Aged biochar affects gross nitrogen mineralization and recovery: a N-15 study in two contrasting soils**, GLOBAL CHANGE BIOLOGY BIOENERGY, 2017, 9, 1196-1206

Zhu, LX; Xiao, Q; Cheng, HY; Shi, BJ; Shen, YF; Li, SQ, **Seasonal dynamics of soil microbial activity** after biochar addition in a dryland maize field in North-Western China, ECOLOGICAL ENGINEERING, 2017, 104, 141-149

Liu, W; Huo, R; Xu, JX; Liang, SX; Li, JJ; Zhao, TK; Wang, ST, Effects of biochar on nitrogen transformation and heavy metals in **sludge composting**, BIORESOURCE TECHNOLOGY, 2017, 235, 43-49

von Gunten, K; Alam, MS; Hubmann, M; Ok, YS; Konhauser, KO; Alessi, DS, Modified **sequential extraction for biochar and petroleum coke**: Metal release potential and its environmental implications, BIORESOURCE TECHNOLOGY, 2017, 236, 106-110

Lee, XJ; Lee, LY; Gan, S; Thangalazhy-Gopakumar, S; Ng, HK, Biochar potential evaluation of **palm oil wastes** through slow pyrolysis: Thermochemical characterization and pyrolytic kinetic studies, BIORESOURCE TECHNOLOGY, 2017, 236, 155-163

Erdem, H; Kinay, A; Gunal, E; Yaban, H; Tutus, Y, THE EFFECTS OF BIOCHAR APPLICATION ON **CADMIUM UPTAKE OF TOBACCO**, CARPATHIAN JOURNAL OF EARTH AND ENVIRONMENTAL SCIENCES, 2017, 12, 447-456

Antunes, E; Schumann, J; Brodie, G; Jacob, MV; Schneider, PA, **Biochar produced from biosolids using a single-mode microwave**: Characterisation and its potential for phosphorus removal, JOURNAL OF ENVIRONMENTAL MANAGEMENT, 2017, 196, 119-126

Lawrinenko, M; Jing, DP; Banik, C; Laird, DA, **Aluminum and iron biomass pretreatment impacts on biochar anion exchange capacity**, CARBON, 2017, 118, 422-430

Shepherd, JG; Joseph, S; Sohi, SP; Heal, KV, **Biochar and enhanced phosphate capture**: Mapping mechanisms to functional properties, CHEMOSPHERE, 2017, 179, 57-74

Wang, SS; Gao, B; Li, YC; Ok, YS; Shen, CF; Xue, SG, Biochar provides a safe and **value-added solution for hyperaccumulating plant disposal**: A case study of *Phytolacca acinosa* Roxb. (Phytolaccaceae), CHEMOSPHERE, 2017, 178, 59-64

Beiyuan, J; Awad, YM; Beckers, F; Tsang, DCW; Ok, YS; Rinklebe, J, **Mobility and phytoavailability of As and Pb** in a contaminated soil using pine sawdust biochar under systematic change of redox conditions, CHEMOSPHERE, 2017, 178, 110-118

Li, HB; Dong, XL; da Silva, EB; de Oliveira, LM; Chen, YS; Ma, LNQ, **Mechanisms of metal sorption by biochars**: Biochar characteristics and modifications, CHEMOSPHERE, 2017, 178, 466-478

Khan, KY; Ali, B; Cui, XQ; Feng, Y; Yang, XE; Stoffella, PJ, Impact of different feedstocks derived biochar amendment with cadmium low uptake affinity cultivar of pak choi (*Brassica rapa* ssp. *chinensis* L.) on **phytoavoidance of Cd** to reduce potential dietary toxicity, ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY, 2017, 141, 129-138

Yao, Q; Liu, JJ; Yu, ZH; Li, YS; Jin, J; Liu, XB; Wang, GH, **Three years of biochar amendment alters soil** physicochemical properties and fungal community composition in a black soil of northeast China, SOIL BIOLOGY & BIOCHEMISTRY, 2017, 110, 56-67

Reed, EY; Chadwick, DR; Hill, PW; Jones, DL, Critical **comparison of the impact of biochar and wood ash** on soil organic matter cycling and grassland productivity, SOIL BIOLOGY & BIOCHEMISTRY, 2017, 110, 134-142

Abdul, G; Zhu, XY; Chen, BL, Structural characteristics of **biochar-graphene nanosheet composites** and their adsorption performance for phthalic acid esters, CHEMICAL ENGINEERING JOURNAL, 2017, 319, 9-20

Karunanayake, AG; Todd, OA; Crowley, ML; Ricchetti, LB; Pittman, CU; Anderson, R; Misra, TE, Rapid removal of salicylic acid, 4-nitroaniline, benzoic acid and phthalic acid from wastewater using **magnetized fast pyrolysis biochar** from waste Douglas fir, CHEMICAL ENGINEERING JOURNAL, 2017, 319, 75-88

Nan, N; DeVallance, DB, Development of poly(vinyl alcohol)/wood-derived **biochar composites for use in pressure sensor applications**, JOURNAL OF MATERIALS SCIENCE, 2017, 52, 8247-8257

Calls for Book Chapters and Journal Papers

[Nova Science Publishers](#) has a call out for chapters of a new post-graduate level book on **Non-soil biochar applications**, to be published March 2018. Chapters should be 6,000-10,000 words with high quality figures/graphs and are due by October 2017. Example topics include, but are not limited to:

- Application of biochar in building materials
- Application of biochar in potable water and wastewater treatment
- Biochar application in storm water management
- Biochar as a filter for managing air quality
- Biochar as a catalyst for chemical reactions
- Biochar use for gaseous emissions control/storage
- Biochar in fuel cell systems
- Development of biochar-based supercapacitors
- Application in animal husbandry

Contact any of these editors for more information:

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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.

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

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

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