

Oral Presentation

Breakout Session 1: Education and Diffusion

September 16th, 9:00am-12:00pm, Room 301

Chairperson: Dr. Hidehiko Kanegae, Dr. Orasa Suksawang

1. Biochar Studies in Western Massachusetts, USA

Richard S Stein

2. The Effective Usage of Biochar and the Social Effects given by its Popularization

Masayuki Matsubayashi

3. Teaching Biochar Science and Culture in Two Schools in the USA

Kelpie J Wilson, Darlyn Wendlandt

4. The UBI Concept

Karl Frogner

5. Exploring the Benefits of Biochar for Native Vegetation Restoration

Doug Phillips, David Warne, Genevieve Ackland

6. Potential for Synergizing Biochar with the Organic Agriculture and Sustainable Landscape Management Movements

Steven R. McGreevy

7. Environmental Improvement and Production of Delicious, High Quality Sake and Cheese through Use of Buried Charcoal

Takemichi Tsurumi

8. Char from Ricehusk, Production and use in Japan

Yoshiaki Umezawa

Breakout Session 2: Cultivation and Soil

September 16th, 9:00am-12:00pm, Room 304

Chairperson: Dr. Stephen Joseph, Dr. Lukas van Zwieten

1. Developing Rapid Tools for Characterising Biochar Carbon Stability

Stephen W. L. Kimber

2. Biochar Stability and Priming Effect: Implications for Long-term Soil Carbon Sequestration

Bhupinder Pal Singh, Annette L. Cowie, Ron J. Smernik

3. Stability of Biochar in Contrasting Soils of Australia

Yunying Y Fang, Balwant Singh, Bhupinder Pal Singh

4. The Effect of Labile Organic Matter on Biochar Stability in the Soil

Balwant Singh, Bupinder Pal Singh, Alexandra Keith

5. Enhancing Soil Carbon Sequestration Utilizing Composts

Nanthi S. Bolan

6. Assessing Changes in Environmental Charcoal over a 30 Year Period as a Way to Predict Decadal Ageing of Biochar

Anna V. McBeath, Ronald J. Smernik, Evelyn Krull

7. Carbon Sequestration and Plant Growth

Yoshizawa Shuji, Tanaka Satoko, Mineki Shigeru, Goto Sumio

8. Life Cycle Analysis of Biochar from Palm Oil Empty Fruit Bunches

Soni Sisbudi Harsono, Philipp Grundmann, Anja Hansen,
Azni Idris, Mam Salleh, Tinia Idaty Mohd Ghazi

Breakout Session 3: Biochar Production and Standardization

September 16th, 9:00am-12:00pm, Room 308

Chairperson: Dr. Stephen Joseph, Dr. Bernardo Tadeo

1. Water Extractable Organic Carbon in Fresh and Treated Biochars

Yun Lin, Paul Munroe, Stephen Joseph, Rita Henderson, Artur Ziolkowski

2. Physico-chemical Characterization of Biochar Products from *Jatropha Curcas* L. shells, Press Cake and Solid Biogas Digestate

Shkelqim Karaj, Kanyaporn Chaiwongb, Claudia Maurer,
Klaus Meissner, Tanongkiat Kiatsiriroat, Joachim Müller

3. The Effects of Reacting Biochars with Phosphoric acid and Potassium Hydroxide

Chee Hung Chia, Stephen Joseph, Paul Munroe,
Yun Lin, James Hook, Artur Ziolkowski

4. Probing Microstructures and Adsorption Capacity of Biochars

Chee Hung Chia, Stephen Joseph,
Paul Munroe, James Hook, Rasmus Linser

5. Properties of Cinders from Red Pine, Locust Tree and Henon bamboo

Inoue Yoshiki

6. Biochar Forensics: Can Functional Properties be Used to Determine Biochar Provenance?

Andrew Cross, Saran Paul Sohi

7. Active Charcoal from Candlenut Shell as Culture Medium of *Gmelina arborea* Roxb

Mody Lempang, Gustan Pari

8. The Mean Residence Time of Biochar-mineral Complexes in Soil

Bhupinder Pal Singh, Stephen Joseph

Breakout Session 4: Cultivation and Soil

September 16th, 13:30pm-18:00pm, Room 301

Chairperson: Dr. Osaki, Dr. Marta Camps

1. Biochar for Horticultural Production in New Zealand

Peter Dennis Enright

2. Carbon Sequestration by Biochar: The Effects of Feedstock and Temperature of Pyrolysis on Chemical and Physical Stability of Biochar

Meghana Vijay Rao

3. Effects of Various Laboratory-produced Biochars on the Bioavailability of Heavy Metals in a Multi-metal Polluted Soil

Lun Rui Zheng, Chao Cai, Guan Yong Zhu

4. Withered Oak Forest Has Come Back to Life with Charcoal Application

Shoji Miyashita

5. Developing Biochars that can be Applied at Low Application Rates; Field Results

Stephen David Joseph, Lukas van Zwieten, Stephen Kimber,
Yun Lin, Joshua Rust, Paul Munroe, James Hook,
Chee Chia, Artur Ziolkowski, Jason Smith

6. Biochar Incubation in Soils: Effects on Carbon and Nitrogen Dynamics in Soil Organic Matter Fractions

Muhammad Farooq Qayyum, Diedrich Steffens,
Hans Peter Reisenauer, Sven Schubert

7. The Study of Chemical Effect of Biochar on the Humification during Composting Process of Manure Composts

Keiji Jindo, Tomonori Sonoki, Masakazu Aoyama
Carlos Garcia, Miguelangel Sanchez-Monedero

8. Biochar Effects on Mycorrhizal Colonization of Wheat

Noraini M Jaafar, Zakaria M. Solaiman, Lynette K. Abbott
Daniel V. Murphy, Peta L. Clode

9. Char from Chicken Manure: Physico-chemical Characterization

Valentina Marsala, Giulia Cimò, Claudio De Pasquale

Anna Micalizzi, Pellegrino Conte, Alessandro Pozzi

Massimo Valagussa, Giuseppe Alonzo

10. GCI - Engineering of Biochar Production

Océane Taquoi, Claire Chagué

11. Improved Biomass, Essential Oil, and Flavonoid Yield of Greenhouse Basil in Five Organic Soil Substrates

Landon G Young, Mario Ferruzzi, Roberto Lopez, Lori Hoagland

Breakout Session 5: Cultivation and Soil

September 16th, 13:30pm-18:00pm, Room 304

Chairperson: Dr Evelyn Krull, Dr. Yoshiyuki Shinogi

1. Influence of Biochar on Nitrogen Fixation by Field-grown Fababean Assessed Using Natural ¹⁵N Abundance

Lukas Van Zwieten, Stephen Kimber, Adriana Downie

Annette Cowie, David Herridge, Stephen Morris

2. Rice Husk Biochar Increases Nitrogen Use Efficiency of Low Land Rice in Aceh

Peter G Slavich, Gani Anischan, Malem McLeod, Pak Chariunas

3. Ammonia Volatilization in the Subtropical Agricultural Field Amended with Rapeseed Biochar

Xinqing Li, Hui Zhou, Like Zhang

Zhihong Zhou, Bing Wang, Bin Fang

Jianzhong Cheng, Hongguang Cheng

4. Investigation of Potential Mechanisms that Reduce N₂O Flux Following Biochar Application to Soil

Lukas Van Zwieten, Stephen Kimber, Evelyn Krull

Bhupinder Pal Singh, Dan Murphy, Peter Quin

5. Poultry Manure Biochar Application to a Ferrosol-effects on N Cycling Processes
Catherine E. Dandie, Jeffrey A. Baldock,
Lukas Van Zwieten, Evelyn Krull
6. Anaerobic Digestion and Subsequent Pyrolysis of ¹⁵N Cattle Manure: An Isotopic Study of Nitrogen Dynamics in Soil
Socrates Schouten
7. Nutrient Dynamics Following Biochar Application to Soils
Evelyn Susanne Krull, Lester Smith, Sheridan Martin
Scott Donne, Rai Kookana
8. Biochar Management of Soil Biota and Crop Nutrition
Johannes Lehmann, Steven Vanek, Kelly Hanley
David Guerena
9. Phosphorus Bioavailability from Ash-rich Biochars Produced at Different Pyrolysis Temperatures
Tao Wang, Marta Camps-Arbestain, Mike Hedley
Peter Bishop
10. Soil Aggregation
Yoshizawa Shuji, Tanaka Satoko, Mineki Shigeru, Goto Sumio
11. Effect of Artificially Aged Biochar (BMC) on the Mycorrhizal Colonisation, Plant Growth, Nutrient Uptake and Soil Quality Improvement
Zakaria Solaiman, Stephen Joseph
12. The Nanostructure of Fresh and Aged Biochar and its Potential Significance for Changes in Soil Properties and Plant Nutrient Uptake
Stephen Joseph, Johannes Lehmann, James Amonette
Marta Camps, Paul Munroe, David Muller
Yun Lin, Chee Chia

Breakout Session 6: Biochar Production and standardization

September 16th, 13:30pm-18:00pm, Room 308

Chairperson: Dr. Wen-Chi Chen, Dr. Syuji Yoshizawa

1. A New Tool for Biochar Characterisation

Laura Clare McParland, Evelyn S Krull

2. Characteristics of Banana Peel-derived Biochar Pertinent to its Potential Use as a Soil Conditioner

Frank Kalema Kalemelawa, Sadahiro Yamamoto, Eiji Nishihara
Endo Tsuneyoshi, Ahmad Zahoor, Sato Toshio

3. Characterization of Pyrolysis Products for Production of Biochar from Giant Miscanthus by Slow Pyrolysis

Changkook Ryu, Yongwoon Lee, Pu-Reun-Byul Eum
Jin-Ho Jung, Seunghun Hyun

4. Operational Experience of Continuous Biochar Production

Adriana Downie, David Lau

5. Commercialization of Slow Pyrolysis Kiln in East Africa

Jason Aramburu

6. Evaluation of Carbon Sink Related to Biochar Production Process

Senoo Kazunari

7. Carbon Neutral vs Climate Neutral: Where Does Biochar Sit?

Annette L Cowie

8. Biochar Production and Market Development for Rural Appalachia

David Henry Domermuth

9. A Project Utilizing University and Local Tacit Knowledge to Develop a Branding Strategy to Expand the Positive Impacts of Biochar

Michael Hall

10. An Aggressive Projection of Biochar's Global Potential

Ronal W Larson

11. Biochar Project Feasibility – Sensitivity Analysis

Adriana Downie

Poster Presentation

- Greenhouse Gas Accounting Approaches for Biochar
Adriana Downie, David Lau, Annette Cowie, Paul Munroe
- Characterization of Biochar Derived from Three Types of Biomass
Oh Taek-Keun, Choi Bong-Su, Shinogi Yoshiyuki, Chikushi Jiro
- Impacts of Biochar Addition on Methane and Carbon Dioxide Emissions During Composting of Cattle Manure
Tomonori Sonoki, Toru Furukawa, Hideki Mizumoto
Keiji Jindo, Masakazu Aoyama, Miguel Angel Sanchez Monedero
- Phosphorus Bioavailability in Sewage Sludge Charcoal
Sato Shinjiro
- Impact of Biochar Amendment on Fertility of an Ultisols in Northern Taiwan
Chen-Chi Tsai, Yu-Fang Chang
- Biochar Oldification Increased Rice Growth
Yan Ping Xu, Zu Bin Xie
- Effect on Seed Germination and Plants Growing of Different Charcoal from Gasification Process
Alessandro Pozzi, Massimo Valagussa
- Hydraulic and Thermal Properties of a Calcaric Dark Red Soil as Influenced by Incorporation of Sugarcane Bagasse-derived Biochar
Kameyama Koji, Miyamoto Teruhito, Shiono Takahiro

- Microbial Community Change under Bovine Urine Patches in the Presence of Biochar
Craig R Anderson, Tim J Clough, Leo M Condrón
- Biochar as a Soil Amendment and Growth Stimulus for Eucalyptus Forestry Plantations under Tasmanian Conditions.
Anna Wrobel-Tobiszewska, Jane Sargison, Mark Boersma
- Improvement of Acidified Forest Soil within the Precinct of Shrine in Kyoto (Japan)
Ito Kazuo, Kiso Mizuki
- Improvement of Sandy-soil Water and Nutrient Use Efficiency Using Palm Shell Biochar Under Controlled Moisture Conditions
Mogami Akiyo
- Nitrogen Forms and their Relationship with Carbon Decomposition in Biochars: Results from a Short Term Incubation Study
Tao Wang, Marta Camps-Arbestain, Mike Hedley, Peter Bishop
- Nutrient Mineralisation and Soil Carbon from Organic Amendments Mixed with Biochar in Temperate Australia and Tropical Indonesia.
Malem K McLeod, Peter G Slavich, Neneng Nuraida
Edi Husen
- Biochar, Water Use, and Productivity of *Digitaria Eriantha* cv. Premier on a Degraded Soil in Northern NSW Australia
Malem K McLeod, Peter G Slavich, Ross J McLeod
Steven Harden
- Effect of Application of Powdered Charcoal and Inorganic Fertilizer on Soil Carbon Sequestration and Growth Patterns of *Quercus Serrata* and *Cryptomeria Japonica* in a Japanese Satoyama Forest
Shibuya Yuki, Kishimoto Rie, Yamazaki Yuri
Watanabe Yoshinori, Okumura Hiroshi, Wakatsuki Toshiyuki

- The Interactions Between Soil Type, Biochar Type and Rate of Application:
Differing Responses from Plant Biomass
Evelyn Susanne Krull, Mark Farrell, Lynne Macdonald
Zakaria Solaiman, Janine McGowan, Daniel Murphy
- Bagasse Charcoal
Komiya Yasuaki
- The Effects of Biochar on Cultivated Plants -in Case of Kameoka Field-
Yasuyo Fujii, Yuuki Daikoku, Ayasa Imamura
Masahiko Wada, Ryo Sekiya, Terukazu Kumazawa
Akira Shibata, Hidehiko Kanegae
- Influence of Biochar Application on Nitrogen Fertilizer Dynamics
Gayoung Yoo
- Evaluation of Biochar as a Soil Amendment : Investigation of Seedling Bioassays
Oh Taek-Keun, Choi Bong-Su, Shinogi Yoshiyuki
Chikushi Jiro, Lee Yong-Hwan
- Effect of Fresh and Carbonised Corn Stover on the Mineralization of Soil Organic
Carbon in Volcanic and Non-volcanic Soils
Saman Herath, Marta Camps Arbestain, Mike Hedley
- Pilot Project of Biochar Production from Pyrolysis of Municipal Solid Waste
Supaporn Junrungreang, Nuanjun Pasda, Monrawee Peerawatchara
- Study Types and Rates of Biochar to Increase Lettuce Yield in Acid Sandy Soil
Chaiyanam Dissataporn
- The Chemical Variability of Biochar: Is It Possible to Develop a Classification
System?
Lynne M Macdonald, Zakaria M Solaiman, Mark Farrell
Daniel V Murphy, Evelyn s Krull

- Characterisation of C Fractions in Charcoal from Archaeological Maori Soils of New Zealand
 Roberto Calvelo Pereira, Marcos Vazquez Sueiro, Joeri Kaal
 Marta Camps Arbestain, Marta Sevilla, Jason Hindmarsh
- Comparison of Methodologies for Determining Surface Charge in Biochar
 Roberto Calvelo Pereira, Marcos Vazquez Sueiro, Marta Camps Arbestain
 Juan Antonio Macia Agullo
- Production and Psysico-chemical Characterization of Biochar from Palm Kernel Shell
 Sieng Huat Kong, Robert Thomas Bachmann, Soh Kheang Loh
 Jumat Salimon
- Microorganisms Proliferation
 Yoshizawa Shuji, Tanaka Satoko, Onozawa Osamu
- Preparation of Biochar by Vertical Type Continuous Carbonization Furnace and Applied to Soil Amendment
 Chuan-Chi Chien
- Characterization of White Chacoal
 Chee Hung Chia, Stephen Joseph, Paul Munroe, James Hook
- Carbon Efflux from Soil Column with Three Different Biochars
 Ueno Takafumi, Ohta Seiichi