

Julian Yu, PhD

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Education

Ph.D., Microbiology – Arizona State University, Tempe, AZ 2020
Emphasis: Microbial Ecology
Dissertation title: Characterization of Tropical Agricultural Soil Microbiomes After Biochar Amendment

B.S., Genomics – Michigan State University, East Lansing, MI 2013

Experience

Graduate Assistant – School of Life Sciences, Arizona State University 2014 – 2020

Research Assistant – Center for Microbial Ecology, Michigan State University 2009 – 2014

Research Assistant – Comparative Enteric Disease Lab, Michigan State University. 2012 – 2013

Publications

- Yu J, Pavia MJ, Deem LM, Crow SE, Deenik J, Penton CR. 2020. DNA-Stable Isotope Probing Shotgun Metagenomics Reveals the Resilience of Active Microbial Communities to Biochar Amendment in Oxisol Soil. *Under Review to Frontiers in Microbiology*.
- Sher AA., Jerome JP, Bell JA, Yu J, Kim HY, Barrick JE, Mansfield LS. (2020) Experimental Evolution of *Campylobacter jejuni* leads to loss of motility, *rpoN* ($\sigma 54$) deletion and genome reduction. *Under Review to PLOS Genetics*.
- Finn D, Yu J, Ilhan E, Fernandes V, Penton CR; Krajmalnik-Brown R, Garcia-Pichel F, Vogel T. (2020) MicroNiche: an R package for assessing microbial niche breadth and overlap from amplicon sequencing data. *FEMS Microbiology Ecology*. 96(8). doi:10.1093/femsec/fiaa131.
- Tao X, Feng J, Yang Y, Wang G, Tian R, Fan F, Ning D, Bates CT, Hale L, Yuan MM, Wu L, Gao Q, Lei J, Schuur EAG, Yu J, Bracho R, Luo Y, Konstantinidis KT, Johnston ER, Cole JR, Penton CR, Tiedje JM, Zhou J. 2020. Winter Warming in Alaska Accelerates Lignin Decomposition Contributed by Proteobacteria. *Microbiome*, 8(84): 15096-15105.
- Finn DR, Yu J, Penton CR. 2020. Soil Quality Shapes the Composition of Microbial Community Stress Response and Core Cell Metabolism Functional Genes. *Applied Soil Ecology*. 143:103483
- Gupta VVSR, Zhang B, Penton CR, Yu J, Tiedje JM. 2019. Diazotroph diversity and nitrogen fixation in summer active perennial grasses in a Mediterranean region agricultural soil. *Frontiers in Molecular Biosciences* 6: 115. DOI: 10.3389/fmolb.2019.00115
- Gupta VVSR, Bramley RGV, Greenfield P, Yu J, Herderich MJ. 2019. Vineyard soil microbiome composition related to rotundone concentration in Australian cool climate ‘peppery’ Shiraz grapes. *Frontiers in Microbiology*, 10: 1607.
- Yu J, Deem LM, Crow SE, Deenik JL, Penton CR. 2019. Comparative Metagenomics Reveals Enhanced Nutrient Cycling Potential After Two Years of Biochar Amendment in a Tropical Oxisol. *Applied and Environmental Microbiology* 85: e02957-18.
- Yu J, Deem LM, Crow SE, Deenik JL, Penton CR. 2018. Biochar application influences microbial assemblage complexity and composition due to soil and bioenergy crop type interactions. *Soil Biology and Biochemistry* 117, 97-107. DOI: 10.1016/j.soilbio.2017.11.017
- Penton CR, Gupta VVSR, Yu J, Tiedje JM. (2016). Size Matters: Assessing Optimum Soil Sample Size for Fungal and Bacterial Community Structure Analyses Using High Throughput Sequencing of rRNA Gene Amplicons. *Frontiers in Microbiology*, 7:824. DOI: 10.3389/fmicb.2016.00824

Presentations

- Yu J. (2018) Microbiomes and Metagenomes of Biochar-Amended Agricultural soils. Invited Speaker. Science and Mathematics Colloquium Series. Arizona State University – Polytechnic Campus. Mesa, AZ
- Yu J., Deem L, Crow SE, Deenik J, Penton CR. (2018) Soil Microbial Community Response to Two Years Biochar Amendment Revealed by Metagenomics. International Society of Microbial Ecology (ISME). Leipzig, Germany
- Yu J., Deem L, Crow SE, Deenik J, Penton CR. (2017) Biochar Amendment Increase Soil Microbial Assemblage Complexity and Composition Due to Soil and Bioenergy Crop Type Interactions. American Society of Microbiology - Arizona/Southern Nevada Branch Annual Meeting. Tucson, AZ
- Yu J., Deem L, Crow SE, Deenik J, Penton CR. (2016) Stable Isotope Probing (SIP) – Enabled Metagenomics of Active Microbial Degradors in Response to Priming Under Biochar Amended Soils. ASA-CSSA-SSSA International Annual Meeting. Phoenix, AZ
- Yu J., Deem L, Crow SE, Deenik J, Penton CR. (2016) Biochar Amendment Increase Soil Microbial Assemblage Complexity and Composition Due to Soil and Bioenergy Crop Type Interactions. International Society of Microbial Ecology (ISME). Montreal, Canada
- Konstantinidis KT, Johnston ER, Penton CR, Yu J., Wu L, Zhou S, Guo X, Zhang P, He Z, Yuan MM, Luo Y, Schuur EAG, Cole JR, Tiedje JM, Zhou J. (2016) Metagenomics recovers 100s of population genomes from Alaskan permafrost and Oklahoma prairie soils and provides insights into their roles in microbial community response to warming. Department of Energy Genomics GTL Meeting. Washington, D.C.
- Deem L, Crow SE, Deenik J, Yu J., Penton CR. (2016) Biochar may increase soil temperature sensitivity of soil respiration and N₂O flux in a Mollisol soil while increasing temperatures may increase the ratio of N-fixing bacteria. College of Tropical agriculture and Human Resources symposium, University of Hawaii. Honolulu, HI.
- Yu J., Deem L, Crow SE, Deenik J, Penton CR. (2015) Microbial community response to biochar amendment to a tropical Oxisol and Mollisol. Molecular and Cellular Biology and Microbiology Graduate Programs Annual Retreat, Arizona State University. Tempe, AZ.
- Yu J., Crow SE, Deenik J, Deem L, Penton CR. (2015) The effect of biochar amendment on microbial community composition. American Society of Microbiology Annual Meeting. New Orleans, LA.
- Deem L, Crow SE, Deenik J, Meulemans J, Yu J., Penton CR. (2015) The evaluation of biochar effects at both the field and laboratory scale; soil carbon, microbial community composition and carbon dioxide efflux. 5th International Symposium on Soil Organic Matter (SOM2015). Göttingen, Denmark.
- Penton CR, Gupta VVSR, Yu J., Tiedje JM. (2014) Soil sample size affects fungal and bacterial community structure and richness: An update using targeted amplicon sequencing. International Society of Microbial Ecology (ISME). Seoul, Korea.
- Penton CR, Gupta VVSR, Yu J., Tiedje JM. (2014) Soil sample size affects fungal and bacterial community structure and richness: An update using targeted amplicon sequencing. Argonne National Lab Metagenomics Annual Meeting. Lemont, IL.
- Penton CR, Gupta VVSR, Yu J., Tiedje JM. (2014) Soil sample size affects fungal and bacterial community structure and richness: An update using targeted amplicon sequencing. ASSA-CSSA-ASA International Annual Meeting. Long Beach, CA.

Awards

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| • School of Life Sciences Completion Fellowship, \$9500 | 2020 |
| • School of Life Sciences Graduate Program Travel Award, \$400 | 2018 |
| • Arizona State University Graduate College Travel Award, \$500 | 2018 |

- ASA-CSSA-SSSA Annual meeting C07 Poster competition – third place winner, \$100 2016

Mentoring

Teaching Assistant

- MIC470 – Microbial Diversity Dr. Hinsby Cadillo-Quiroz Arizona State University
- MBB350 – Applied Genetics Dr. Roberto Gaxiola Arizona State University

Guest Lectures

- MIC205 – Introduction to bacterial genetics
- ABS318 – Unseen Life on Earth: Biochar effects on soil microbial communities

Mentoring

- 2016 Collin Markut, Undergraduate research assistant
- 2016 Patherica Charoemins, Ashley Zankich, Undergraduate research assistant
- 2015 Viktor Lekic, Undergraduate research assistant
- 2015 Maritza Sandoval Aguilar, Visiting Graduate Student
Sonora Institute of Technology
- 2015 Brittany Ruis, Melvin Abraham, Undergraduate research assistant

Society Memberships

International Society of Microbial Ecology (Since Mar 2016)

American Society for Microbiology (Since Feb 2015)

Microbiology Journal Consortium (Since Jan 2015)