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EDUCATION

PhD Candidate, Department of Plant and Soil Sciences

Fall, 2014- Present

GPA 3.92/4.0, University of Delaware (UD), USA

Dissertation Title: Quantification and molecular characterization of mineral associated organic carbon under redox oscillating environment: Relevance in C cycling and stabilization *Advisor*: Dr. Yan Jin

M.S. in Soil, Water and Environment

2004-2005 (held in 2008)

GPA 4.0/4.0, University of Dhaka, Bangladesh

B.Sc. in Soil, Water and Environment

2000-2004 (held in 2006)

GPA 3.95/4.0, University of Dhaka, Bangladesh

PROFESSIONAL EXPERIENCES

- ✓ 12/12- Present: Asst. Professor, Department of Soil Science, University of Chittagong, BD (on study leave)
- ✓ 04/11-12/12: Lecturer, Department of Soil Science, University of Chittagong, BD
- ✓ 12/10-04/11: Scientific Officer, Bangladesh Rice Research Institute (BRRI), BD
- ✓ 01/10-12/10: Professional Service Contract, International Rice Research Institute (IRRI), BD

HONORS AND AWARDS

- ✓ University Dissertation Fellowship (2019-2020), \$28,000/year
- ✓ Delaware Environmental Institute (DENIN) Environmental Fellow (2017-2019), \$30,000/year
- ✓ Professional Development Award, UD, 2015, 2017 and 2018
- ✓ Merit based travel grant, Geochemical Society, 2017, \$1200
- ✓ 2nd place in poster presentation, DENIN graduate students' research symposium, 2017
- ✓ 2nd place in poster presentation, College of Agriculture and Natural Resources (CANR) research symposium, UD, 2017
- ✓ Soil, Water and Environment Department, Dhaka University (SWED-DU) TRUST Scholarship for excellent academic performance in B.Sc. (Hons.)
- ✓ "Certificate of Honor" from University of Dhaka for brilliant results in B.Sc. (Hons.)

PROFESSIONAL AFFILIATIONS

- ✓ American Geophysical Union (AGU)
- ✓ Geochemical Society (GS)
- ✓ Soil Science Society of America (SSSA)
- ✓ Soil Science Society of Bangladesh

PUBLICATIONS

- Afsar, M.Z.** C. Goodwin, T. B. Beebe Jr., D.P. Jaisi, and Y. Jin. 2019. Quantification and molecular characterization of organo-mineral associations as influenced by redox oscillations. *Science of the total Environment* (In Press)
- Ahmed, F., **M.Z. Afsar**, M.S. Islam, and M.A. Kashem. 2015. Phosphate sorption potential of some acid soils of Bangladesh as tested by Freundlich and Temkin equation. *International Journal of Advanced Research in Biological Sciences*, 2(1): 16-23.
- Roy, S., **M.Z. Afsar**, M.A. Kashem. 2014. Nutrient content of Indian spinach in saline soil as affected by different organic manures. *International Journal of Environmental Sciences*, 4(5): 694-702.
- Ahmed, F., **M.Z. Afsar**, and M.A. Kashem. 2014. Use of Linearized Versions of Langmuir Model to Study Phosphate Sorption Capacity of Soils. *Current Trends in Technology and Sciences*, 3(6):395-401.
- Afsar, M.Z.**, S. Hoque, and K.T. Osman. 2012. Phosphate Desorption Characteristics of Some Representative soils of Bangladesh: Effect of Exchangeable Anions, Water Molecules, and Solution to Soil Ratios. *Open Journal of Soil Science*, 2: 234-241, doi: 10.4236/ojss.2012.23028.

Afsar, M.Z., and M.E. Hossain, 2012. Characterization of Some Representative Calcareous Soils of Bangladesh with Respect to Soil Phosphorus Requirements. *International Journal of Agricultural Research*, 7(8): 388-397, doi: 10.3923/ijar.2012.

Afsar, M.Z., S. Hoque, and K.T. Osman, 2012. A comparison of the Langmuir, Freundlich and Temkin Equations to Describe Phosphate Sorption Characteristics of Some Representative Soils of Bangladesh, 2012. *International Journal of Soil Science*, 7(3): 91-99, doi:10.3923/ijss.2012.91.99.

MANUSCRIPT under submission

Afsar, M.Z., J. Yan, and Y. Jin. Redox Oscillations Enhance Destabilization and Mobilization of Protected Colloidal Soil Organic Carbon.

Afsar M.Z., B.L. Vasilas, and Y. Jin. Colloidal organic Carbon has a Key but an Unaccounted Role in Carbon Dynamics in Seasonally Flooded Wetlands.

Afsar M.Z. and Y. Jin. Elemental composition of size-fractionated colloids and their role in organic carbon mobilization in depressional wetlands.

CONFERENCE ABSTRACTS

1. **Afsar M.Z.** and Y. Jin. Elemental composition of size-fractionated colloids and their role in organic carbon mobilization in depressional wetlands. AGU Fall meeting, San Francisco, December 2019 (Oral presentation)
2. **Afsar M.Z.**, B.L. Vasilas, and Y. Jin. Colloidal organic Carbon has a Key but an Unaccounted Role in Carbon Dynamics in Seasonally Flooded Wetlands. SSSA meeting, San Antonio, USA. November 2019. (Oral presentation)
3. **Afsar M.Z.**, B.L. Vasilas, and Y. Jin. Wetland's Hydro-periods Influence the Size Dependent Heterogeneity of Mineral-Organic Matter Complexes. SSSA meeting, San Diego, USA. January 2019. (Oral presentation)
4. **Afsar M.Z.**, Y. Zhang, B.L. Vasilas, and Y. Jin. Colloidal organic carbon has a key but unaccounted role in carbon dynamics in seasonally flooded wetlands. College of Agriculture & Natural Resources (CANR) Research Symposium, University of Delaware, USA, May 3, 2019. (Poster presentation)
5. **Afsar M.Z.**, J. Yan, and Y. Jin. Mobilization and Release of Organic Matter from Soil Column Under Redox Oscillation Conditions. The College of Agriculture and Natural Resources Research Symposium, University of Delaware, April 30, 2018. (Poster presentation)
6. **Afsar M. Z.**, J. Yan, and Y. Jin. Mobilization and Release of Organic Matter from Soil Column Under Redox Oscillation Conditions. Delaware Environmental Institute (DENIN) Environmental Symposium, University of Delaware, USA, March 15, 2018. (Poster presentation)
7. **Afsar M. Z.**, J. Yan, C. Goodwin, B. L. Vasilas, and Y. Jin. Colloid Mobilization and Biogeochemical Cycling of Organic Carbon in Wetlands. USDA NIFA and NSF Water and Soils Project Director meeting, January 29-31, 2018, Washington DC. (Poster presentation)
8. **Afsar M.Z.**, C. Goodwin, and Y. Jin. Quantification and Molecular Characterization of Mineral Associated Organic Carbon as Influenced by Redox Oscillations. 27th Goldschmidt conference, Paris, France. August 13-18, 2017. (Oral presentation)
9. **Afsar M.Z.**, C. Goodwin, and Y. Jin. Quantification and Molecular Characterization of Mineral Associated Organic Matter as Influenced by Redox Oscillations. College of Agriculture & Natural Resources Research Symposium, University of Delaware, USA. May, 2017. (Poster presentation; won the second prize)
10. Yan, J., **M.Z. Afsar** and J. Yan. Quantification and characterization of colloids and organic matter released under oscillation redox conditions. European Geosciences Union (EGU) general assembly, Vienna, Austria. April 2017. (Oral presentation)
11. **Afsar M.Z.**, C. Goodwin, and Y. Jin. Quantification and Molecular Characterization of Mineral Associated Organic Matter as Influenced by Redox Oscillations. DENIN graduate student research symposium, University of Delaware, USA. March 2017. (Poster presentation; won the second prize)
12. **Afsar M.Z.**, C. Goodwin, and Y. Jin. Quantification and Molecular Characterization of Mineral Associated Organic Matter as Influenced by Redox Oscillations. 7th Annual Graduate Students' Forum, UD. April 2017 (Poster presentation)

- 13. Afsar M.Z.,** C. Goodwin, and Y. Jin. Molecular Characterization of Dissolved Organic Matter as Influenced by Redox Oscillation Condition. SSSA meeting, Phoenix, USA. November 2016. (Oral presentation)
- 14. Afsar, M.Z.,** J. Yan, and Y. Jin. Mobilization and Release of Organic Matter from Soil Column under Redox Oscillation Condition. AGU Fall Meeting, San Francisco, USA. December 2015. (Oral presentation)

WORKSHOP ATTENDED

"Arsenic in Rice: South-South Exchange Network for International Collaboration", October 2010. Organized by bbsrc, University of Aberdeen, IRRI.

GRANT SUPPORT

- ✓ Bezbaruah, A.*, and **Afsar, M.Z.** Removal of phosphorus from water by using physical and chemical adsorbents (*Associate Professor, Department of Civil Engineering, North Dakota State University, USA, WateRediscover International), 2012-2013
- ✓ **Afsar, M.Z.** Measuring and predicting phosphorus availability in acid soil by using organic manures and inorganic fertilizers, 2011-2012
- ✓ Kashem M.A., **Afsar, M.Z.** Phosphorus retention capacity and rice yield as affected by poultry manure and inorganic fertilizer in saline soil, 2012-2013
- ✓ Kashem M.A., **Afsar, M.Z.** Effect of manure application on soil phosphorus sorption characteristics in some representative acid soils of Bangladesh. 2012-2013

TECHNICAL SKILLS

TOC analyzer, CHNS analyzer, IRMS, XPS, AAS, XRD, EEMs, SEM, TEM etc.

ADMINISTRATIVE ACTIVITIES

- ✓ Student helper, AGU Fall meeting, 2019, December 9-13, 2019
- ✓ Student helper, Goldschmidt conference, 2017, August 13-18, 2017
- ✓ Student Intern, SSSA meeting, 2016, Nov. 6-9; Phoenix, USA
- ✓ House Tutor, Shahid Abdur Rab Hall, University of Chittagong, BD
- ✓ Founder Vice President, Leo Club of Dhaka University, Lions Clubs International, BD
- ✓ Participated in 10th annual Leo District Conference 2005, Lions Clubs international, District-315 A2, Bangladesh.
- ✓ Participated in Leo District Council 2005, Lion clubs International, District-315 A2, Bangladesh

Updated: November 18, 2019