SUNITH MADDURI

Email: sbmadduri@pvamu.edu

EDUCATION:

Doctor of Philosophy (Ph.D.),
Sustainable Bioproducts — January 2018 – December 2020
Mississippi State University, Starkville, USA

Master of Business Administration (MBA) — January 2014 – August 2016
Dallas Baptist University, Dallas, USA

Master of Technology (M-Tech) — January 2012 – December 2013
Biochemical Engineering, JNTU Hyderabad, India

Bachelor of Technology (B-tech) — August 2004 - December 2008
Biotechnology, JNTU Hyderabad, India

ACADEMIC PROJECTS:

- **PhD Dissertation:**
  - Development of low-cost adsorbents from biomass residues for the removal of organic contaminants and heavy metals from aqueous solutions.

- **M-Tech Thesis:**
  - Isolation and optimization of protease from soil strain by solid state fermentation.

PUBLICATIONS:

- **Novel oxone treated hydrochar for the removal of Pb(II) and methylene blue (MB) dye from aqueous solutions.**
  Sunith B. Madduri*, Islam Elsayed, and El Barbary Hassan*, *Chemosphere. 2020 Dec; 260: 127683.* *https://doi.org/10.1016/j.chemosphere.2020.127683*

- **The influence of three acid modifications on the physicochemical characteristics of tea-waste biochar pyrolyzed at different temperatures: a comparative study.**
  Chathuri Peiris, Oshani Nayanathara, Chanaka M. Navarathna, Yohan Jayawardhana, Samadhi Nawalage, Griffin Burk, Akila G. Karunanayake, ***Sunith B. Madduri****, Meththika Vithanage, M. N. Kaumal, Todd E. Mlsna, El Barbary Hassan, Sachith Abeysundara, Felio Ferezi and Sameera R. Gunatilake, RSC Adv., 2019,9, 17612-17622.* *https://doi.org/10.1039/C9RA02729G*

- **Nitric acid surface pre-modification of novel Lasia spinosa biochar for enhanced methylene blue remediation.**
  Janeshta C.Fernando, ChathuriPeiris, Chanaka M.Navarathna, Sameera R.Gunatilake, UpekshyaWelikala, Sachithra T.Wanasinghe, ***Sunith B.Madduri****, SehanJayasinghe, Todd E.Mlsna, El BarbaryHassan, FelioFerez. Groundwater for Sustainable Development., Volume 14, August 2021, 100603.*
  https://doi.org/10.1016/j.gsd.2021.100603

- **Effective removal of anionic dyes from aqueous solutions by novel polyethylenimine-ozone oxidized hydrochar (PEI-OzHC) adsorbent.**
  Sunith B. Madduri*, Islam Elsayed, and El Barbary Hassan, Arabian Journal of Chemistry, Volume 15, Issue 5, May 2022, 103757.*
  https://doi.org/10.1016/j.arabjc.2022.103757

- **Adsorption of Phosphates onto Mg/Al-Oxide/Hydroxide/Sulfate-Impregnated Douglas Fir Biochar.**
  Chanaka M Navarathna, Jaylen E Pennisson, Narada Wickramasinghe, Claudia Reid, Charles Dotse, Mehdi Erfani Jazi, Prashan M Rodrigo, Xuefeng Zhang, Erin Farmer, Colton Watson, Daniel O Craig, Arissa Ramirez, Michael Walker, ***Sunith B. Madduri****, Dinesh Mohan, Todd E Mlsna, Processes, Volume 11, Issue 1, January 2023, 11010111. https://doi.org/10.3390/pr11010111*

- **Rapid adsorptive removal of low to moderation concentrations of Uranium (VI) using Douglas fir biochar magnetic variant.**
  Prashan M. Rodrigo, Chanaka M. Navarathna, ***Sunith B. Madduri****, Charles U. Pittman Jr, Todd E. Mlsna*
  Manuscript ready to submit.

- **Simultaneous Sorption of Multioxyanions (Phosphate, Arsenate, Chromate and Selenate) using Douglas fir biochar magnetic variant.**
  Sunith B. Madduri, *Prashan M. Rodrigo, Chanaka M. Navarathna, Sean Stokes, Charles U. Pittman Jr, Todd E. Mlsna*
  Manuscript ready to submit.

- **Effective removal of Aniline from aqueous solution by CO_2 activated pine wood-based biochar.**
  Sunith B. Madduri*, Islam Elsayed, and El Barbary Hassan*
  Manuscript in preparation.

- **Enhanced Photocatalytic Degradation of Azo Dyes Using Metal-Doped TiO_2.**
  Sunith B. Madduri*[1], Raghava Kommalapati*
  Manuscript ready to submit.

Google Scholar: *https://scholar.google.com/citations?hl=en&user=aHC_HGUAAAAJ*

Web of Science: *https://www.webofscience.com/wos/author/record/AAS-7635-2021*

CONFERENCE PRESENTATIONS:

ORAL:

- **Novel oxone treated hydrochar for the removal of Pb(II) and methylene blue (MB) dye from aqueous solutions.**
  ***Sunith Madduri**, Islam Elsayed, and El Barbary Hassan, International Biomass Conference & Expo – Feb 3rd- 5th, 2020, Nashville, TN, USA.*

- **Novel oxone treated hydrochar for the removal of Pb(II) and methylene blue (MB) dye from aqueous solutions.**

  ***Sunith Madduri**, Islam Elsayed, and El Barbary Hassan, American Chemical Society Fall 2020 National Meeting & Exposition - August 17-20, 2020, San Francisco, CA, USA (Virtual due to COVID-19).*

- **Effective Removal of Anionic Dyes from Aqueous Solutions by Novel Polyethylenimine-Ozone Oxidized Hydrochar (PEI-OzHC) Adsorbent.**
  ***Sunith Madduri**, Islam Elsayed, and El Barbary Hassan, American Chemical Society Fall 2021 National Meeting & Exposition - August 22-26, 2021, Atlanta, GA, USA.*

- **Rapid adsorptive removal of low to moderation concentrations of Uranium (VI) using Douglas fir biochar magnetic variant.**
  ***Sunith Madduri**, Prashan M. Rodrigo, Chanaka M. Navarathna, Todd E. Mlsna American chemical society Fall 2022 National Meeting & Exposition - August 21-25, 2022, Chicago, IL, USA.*

WORK EXPERIENCE:

1. **Postdoctoral Research Associate, Center for Energy & Environmental Sustainability, Prairie View A&M University, A Member of the Texas A&M University System, Prairie View, TX, USA**
   - National Science Foundation project with focus on treatment of Produced Water utilizing various techniques like, Membrane filtration, Forward Osmosis, Reverse Osmosis, Photocatalysis, Etc.

   Laboratory of Dr. Raghava Kommalapati December 2022 – Present

2. **Research Associate** January 2021 – October 2022
   34T Godeploy Group Inc, Starkville, MS, USA
   - Worked with a team of researchers providing bioinformatic analysis, training, consulting, application support and development which includes supervisory/leadership.
   - Worked on all data on chemicals, fitted coefficients, and functions to estimate chemical properties imported from chemicals through a community-driven open-source library.
   - Enabling IT to make automated sustainable bioproducts.

- Worked on BioSTEAM is built to streamline and automate early-stage technology evaluations and to enable rigorous sensitivity and uncertainty analysis.

3. **Research Assistant (Visiting), Department of Chemistry,**
   Mississippi State University, Starkville, MS, USA
   - Worked on rapid adsorptive removal of low to moderation concentrations of Uranium (VI) and simultaneous sorption of Multioxyanions, using Douglas fir biochar magnetic variant.

   Laboratory of Dr. Todd Mlsna January 2021 – October 2022

4. **Graduate Research Assistant, Department of Sustainable Bioproducts,**
   Mississippi State University, Starkville, MS, USA
   - Research project focused on studying applications of biomass and its residues for adsorption of heavy metals and organic contaminants from aqueous solutions.
   - Worked on various characterization techniques like SEM, FT-IR, TGA, Elemental analysis, BET, AAS, UV-VIS, HPLC, GC, ICP-MS and conductometric titrations.
   - Worked on adsorption of Pb(II), Methylene blue, Remzol brilliant blue, Remzol, reactive black, Aniline, Acetamidophenol, Cd, Cu, CO_2, PFAS, PFBS and other organic contaminants from waste waters by different biomass residues after modification.

   Laboratory of Dr. El Barbary Hassan January 2018 – December 2020

5. **Research Scholar** January 2013 – December 2013

Royall life sciences, Hyderabad, India

Master's thesis: Isolation and optimization of protease from soil strain by solid strain fermentation, India

- Production of biogas from various Agro-industrial waste by addition of helpful microorganism such as *Bacillus subtilis* using solid state fermentation.
- Worked in a cGMP laboratory with strong emphasis on microscopy, spectroscopy, and data handling.
- Learned handling of microbiological strains at BSL-2 level, handling and disposal of hazardous, bio-hazardous, and infectious substances on regular basis.
- Interpreted data and adhering to strict guidelines on documentation when recording data, reporting scientific results.
- Besides working on my thesis my duties were: Developing new analytical techniques for the analysis of drugs and other chemicals; and liaising with customers, staff and suppliers.
- Support fellow Researchers in day-to-day lab activities and organizing journal club meetings.

6. **Research Associate** December 2009 – December 2012
   Vimta Labs, Hyderabad, India
   - Performing analytical chemistry assays based on new and existing methodologies, operating analytical instrumentation such as HPLC and GC-MS.

- Set up new or existing analytical methods for identifying compounds, performed thermal hazards testing, coordinated off-site testing as necessary and conducted testing of analytical samples for the Chemical Department.
- Writing technical reports to document analytical methods and transferring documented analytical methods to the QC department.
- Ordering and maintaining inventory for chemicals, interacting with technical team of the company for troubleshooting problems.
- Maintaining the lab with standard compliance, handling and disposal of hazardous, bio-hazardous and infectious substances on regular basis.

7. **Research and Intern** January 2008 – December 2009
   Nthrys Laboratory, Hyderabad, India
   Bachelor's thesis: Raising rabbit anti-human T-cell receptors polyclonal antibodies for In-Vivo neutralization of T-cells

8. Undergone practical Training in "Pertussis Antigen Production"
   Shantha Biotechnics Limited, Hyderabad, India January 2008 – February 2008

9. Successfully completed training on "Development and Improved Analytical Methods for Production of Threptin".
   Raptakos, Brett and Co. Ltd, Chennai, India December 2007 – January 2008

SKILLS AND TECHNIQUES:

- Expertise on Photocatalysis, Membrane Technology and Adsorption techniques in several waste water treatments.
- Extensively worked on Parr reactor for hydrochar production through hydrothermal carbonization.
- In-depth knowledge working on Auger reactor for Biochar production through pyrolysis.
- Expertise handling and working on Elemental analysis.
- Ability to handle and perform experiments on FT-IR, TGA, BET, and SEM analysis.
- Proficiency handling and experimenting on AAS and UV-VIS.
- Handling Compound Microscope, Laminar Air Flow, Auto Clave, Mechanical Shaker, Spectrophotometer, Conductometer, etc.
- HPLC and GC-MS, validation and creating reports
- Quantitative and Qualitative Techniques, Staining Methods, Sterilization Methods, Media Preparation, Isolation of Microbes, etc.
- Biogas production using anaerobic fermentation

COMPUTER SKILLS:

- Statistical analysis using Microsoft excel
- Microsoft office tools
- Microsoft windows XP, 2007, 2008, 2010, 2011, Mac OS
- Basics of R and Perl.

MEMBERSHIPS:

1. Active Member of the American Chemical Society (ACS), Washington, DC 20036, USA (November 2019 - Present).
2. Active Member of the Forest Products Society, P.O. Box 932, LaGrange, GA 30241, USA (December 2019 - Present).
3. Active Member of the Society of Wood Science and Technology P.O. Box 6155 Monona, WI 53716-6155, USA (May 2020 - Present).
4. Reviewer for Chemical engineering, Water Research, Bioresource Technology, Ground Water for Sustainable Development, etc.,

REFERENCES: Provided upon request.