

CURRICULUM VITAE

Dr. Tsanangurayi Tongesayi, PhD.

Associate Professor-Analytical & Environmental Chemistry

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Monmouth University

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Professional Preparation

University Of Zimbabwe	BS Chemistry& Biochemistry, 1990
University Of Zimbabwe	MS Analytical Chemistry, 1995
Bradford University	Professional Contact Visit, 1999
West Virginia University	PhD Analytical Chemistry, 2006

Appointments

Monmouth University	Associate Professor 2011 to date
Monmouth University, NJ	Assistant Professor 2006-2011
West Virginia University, WV	Senior Lecturer 2005-2006
Mountain State University, WV	Independent Study Program (online courses) 2005-2006
West Virginia University, WV	Graduate Teaching Assistant 2001-2005
Bindura University, Zimbabwe	Lecturer 1996-2001
Bindura University, Zimbabwe	Chair Chemistry Department 1997-2001
Kutama College, Zimbabwe	Chemistry Teacher & HOD Sciences 1991-1996

Membership/Affiliations

1. Associate Member of the Oxford Round Table
2. Member of the Oxford Round Table Environmental Working group
3. Member of the American Chemical Society Analytical Chemistry Division
4. Member of the American Chemical Society Environmental Chemistry Division
5. Associated with The Teaching Professor Conference
6. Associated with the Council on Undergraduate Research
7. Member of the Clinical Advisors/Consultants
8. Member of the Monmouth University Global Sustainability Committee

Service

Monmouth University

1. Member of the Monmouth University Academic Standards and Reviews Committee (current)
2. Member of the Monmouth University Honors Council (current)
3. Member of the Member of the Monmouth University Global Sustainability Advisory Committee (current)
4. Reviewer for the Monmouth Junior Science Symposium
5. Member of the Monmouth University General Education Oversight Committee (GEOC) (2008 to 2010)
6. Chair: Area Committee VI– Reasoned Oral Discourse and Technological Literacy courses (ROD & TL -GEOC) (former)
7. Member of the Cultural Diversity (CD-GEOC) working group (former)
8. Instrument Committee Chair-Department of Chemistry, Medical Technology & Physics (2007 to 2011)
9. Member of the General Chemistry Committee - Department of Chemistry, Medical Technology & Physics (2009 to 2011)
10. Student advising- Department of Chemistry, Medical Technology & Physics
11. Faculty Search Committees - Department of Chemistry, Medical Technology & Physics
12. Course design and development - Department of Chemistry, Medical Technology & Physics
13. Peer classroom observer - Department of Chemistry, Medical Technology & Physics
14. Member of the ACS-Accreditation Review Committee- Department of Chemistry, Medical Technology & Physics (2008 -2009)

Community Service & Service to the Profession

1. Member of the Oxford Round Table Environmental Working Group on Climate Change and Sustainability (Associate member since 2010)
2. Invited discussion leader: “China, India and the United States: Energy Policy Innovation Makes Strange Bedfellows”, OXFORD ROUND TABLE: THE COPENHAGEN PROTOCOL: Problems and Possibilities. Lincoln College, University of Oxford, Oxford, U.K. March 21-26, 2010. Presenter: Lenneal Henderson, Daniel T. Blue Endowed Chair in Political Science, North Carolina Central University, NC.
3. Invited discussion leader: “BP Gulf Oil Spill Disaster: Assessment of Data Needs to Quantify Health Impacts of Air Pollutant Emissions” OXFORD ROUND TABLE: Climate Change: The Great Matter. Harris Manchester College, University of Oxford, March 28, 2011. Presenter: Bhaskar Kura,

Professor and Graduate Programs Coordinator of Civil and Environmental Engineering, University of New Orleans, LA.

4. Grant proposal reviewer-NSF: REU Program
5. Journal article reviewer- Chemosphere, Canadian Journal of Chemistry, Journal of Physical Chemistry.

Research Interests

1. Environmental biogeochemistry & toxicology: heavy metals, organics & engineered nanoparticles
2. Analytical Method development: Separations, Electrochemistry & Spectroscopy
3. Innovative Water Solutions

Publications

Peer-reviewed Journal Articles

1. **Tongesayi, Tsanangurayi; Booth, Ester; Stevens, Sade, Winter, Eric.** Total levels and equilibrium-based phyto- and bioaccessibility of heavy metals as tools to assess sediment quality in recreational waterways. *Environmental Science: An Indian Journal*, **2011**, 6(6), 320-328.
2. **Tsanangurayi Tongesayi, Patricia DaSilva, Katharine Dilger, Tristan Hollingsworth, Melissa Mooney.** Speciation and cysteine-simplified physiological-based extraction technique (SBET) bioaccessibility of heavy metals in biosolids. *JOURNAL OF ENVIRONMENTAL SCIENCE AND HEALTH, PART A: Toxic/Hazardous Substance & Environmental Engineering* **2011**, 46 (10), 1138-1146.
3. **Tsanangurayi Tongesayi.** Mechanism for the release of inorganic arsenic from roxarsone, 3-nitro-4-hydroxyphenylarsonic, by cyclic voltammetry at a gold electrode. *Analytical Chemistry: An Indian Journal* **2010**, 9(2), 280-285.
4. **T. Tongesayi, E. J. Byam, Sarah B. Keyser and M. J. Crounce.** Sorption and desorption properties of phosphate on Fe₂O₃: Effect of fulvic acid and pH. *Environmental Chemistry*, **2008**, 5, 161-168.
5. **Tsanangurayi Tongesayi and Ronald B. Smart.** Electrochemical detection of As(III) in the presence of dissolved organic matter (DOM) by adsorptive Square-Wave Cathodic Stripping Voltammetry (Ad-SWCSV). *Electroanalysis* 20, **2008**, #4, 434-437.
6. **Tsanangurayi Tongesayi and Ronald B. Smart.** Abiotic reduction mechanism of As(V) by fulvic acid in the absence of light and the effect of Fe(III). *Water SA*, **2007**, 33 (5), 615-618. (full paper)
7. **T. Tongesayi, R. B. Smart.** Arsenic Speciation: reduction of Arsenic(V) to Arsenic(III) by Fulvic Acid. *Environmental Chemistry*, **2006**, 3, 137-141.
8. **T. T. Mukono and T. Tongesayi,** Evaluation of community participation in water quality monitoring by the use of water quality descriptors as a preliminary approach to assessing water quality, *Journal of Applied Science in Southern Africa*, **2000**, 6 (2), 115.

Conference proceedings and abstracts: Peer-reviewed by conference organizers

9. **Tongesayi, Tsanangurayi;** Booth, Ester; Stevens, Sade, Winter, Eric. [Total levels, phytoavailability and bioaccessibility of selected heavy metals and metalloids in sediments from Deal Lake, New Jersey](#). From Abstracts of Papers, 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011 (2011), ENVR-360. Language: English, Database: CAPLUS
10. **Tongesayi, Tsanangurayi;** Lantigua, Aracelis. [Fate of hexavalent chromium in the aqueous environment: The role of fulvic acid and iron](#). From Abstracts of Papers, 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011 (2011), ENVR-397. Language: English, Database: CAPLUS, (*Novel Solutions to Water Pollution*).
11. **Tongesayi, Tsanangurayi;** Abbey, Clara; Ali, Muhammad. [Novel method for the treatment of arsenic in drinking water](#). From Abstracts of Papers, 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011 (2011), ENVR-398. Language: English, Database: CAPLUS (*Novel Solutions to Water Pollution*)
12. **Tongesayi, Tsanangurayi;** Dasilva, Patricia; Dilger, Katharine; Hollingsworth, Tristan. [Levels of selected heavy metals in New Jersey sanitary biosolids that are used as fertilizer](#). From Abstracts of Papers, 240th ACS National Meeting, Boston, MA, United States, August 22-26, 2010, ENVR-211. Language: English, Database: CAPLUS
13. **Tongesayi, Tsanangurayi;** Byam, Eric J.; Grafton, Andrea. [Electrochemical analysis of roxarsone, 3-nitro-4-hydroxyphenylarsonic, using palladium, gold, and platinum electrodes](#). From Abstracts of Papers, 238th ACS National Meeting, Washington, DC, United States, August 16-20, 2009, ENVR-160., Database: CAPLUS
14. **Tongesayi, Tsanangurayi** and Smart, Ronald B. [Arsenic speciation: The role of dissolved organic matter \(DOM\) in the reduction of As\(V\) to As\(III\)](#). *Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry, 2005*, 45[2], 198. (extended abstract)

Oxford Round Table: Reviewed and Critiqued by the Oxford Round Table

15. Oxford Round Table, *The Copenhagen Protocol: Problems and Possibilities*- Press Release statement on global climate change, **March 2010**
Note: Dr. Tsanangurayi Tongesayi co-authored the statement with 35 other Scientists and Public Policy Scholars who were part of the March 2010 Oxford Round Table.
16. Oxford Round Table Environmental Working Group. "A Case for Sustainable Resource Management: Climate Change and the Deepwater Horizon Oil Spill". [Forum on Public Policy Web site](#), **August 25, 2010**
Note: Dr. Tsanangurayi Tongesayi co-authored the statement with 15 other Scientists and Public Policy Scholars who constitute the Environmental Working Group of the Oxford Round Table.

Note: Undergraduate students are underlined.

Patents

1. **Tsanangurayi Tongesayi**. U.S. Provisional Patent Application No. 61/525,886 entitled "REMOVAL OF ARSENIC FROM DRINKING WATER USING THIOL-MODIFIED BEVERAGE AND WATER PLASTIC PET BOTTLES"
2. **Tsanangurayi Tongesayi**. U.S. Non-Provisional Patent Application No. 13527166 entitled "METHOD FOR REMOVING CONTAMINANTS FROM WATER USING THIOL-MODIFIED SURFACES CONTAINING ESTER LINKAGES" Filed on 06/19/2012

Presentations

Invited Oxford Round Table Presentations (International)

1. **Tsanangurayi Tongesayi**. "Sustainability and the African Environment: The Role of Multinational Corporations". Oxford Round Table, Harris Manchester College, University of Oxford, UK. **March 27-April 1, 2011**. Conference Theme: Climate Change: The Great Matter
2. **Tsanangurayi Tongesayi**. "Global Warming: The Reality", OXFORD ROUND TABLE: THE COPENHAGEN PROTOCOL, Lincoln College, University of Oxford, UK, March 21-26, **2010**. **Conference Theme:** *The Copenhagen Protocol: Problems and Possibilities*

National/International Conference Presentations

3. **T. Tongesayi**, E. Booth, S. Stevens, E. Winter, **J. Elscheid**. Total levels, phytoavailability and bioaccessibility of selected heavy metals and metalloids in sediments from Deal Lake, New Jersey. 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, **2011**. (Presented at both the Sci-Mix & the General Sessions)
4. **T. Tongesayi**, A. Lantigua, L. Lechner, S. Grimes, S. Farrow. Fate of hexavalent chromium in the aqueous environment: The role of fulvic acid and iron. 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, **2011**. (Presented at both the Sci-Mix & the General Sessions -*Novel Solutions to Water Pollution*).
5. **T. Tongesayi**, C. Abbey, M. Ali. Novel method for the treatment of arsenic in drinking water. 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, **2011**. (Selected as the topic for a press release and press conference -*Novel Solutions to Water Pollution*)
<http://www.ustream.tv/recorded/16989574>
6. **Tsanangurayi Tongesayi**; Dasilva, Patricia; Dilger, Katharine; Hollingsworth, Tristan; Mooney, Melissa. Levels of selected heavy metals in New Jersey sanitary biosolids that are applied on land as fertilizer. 240th ACS National Meeting, Boston, MA August 22-26, **2010**. The same paper was presented at the Sci-Mix and General Sessions. Only a few outstanding papers are selected for the Sci-Mix session. We were extremely happy that our paper made it to the Sci-Mix session.

7. **Tsanangurayi Tongesayi; Muhammad Ali; Julia Elscheid.** Heavy metals in New Jersey sanitary biosolids that are applied on land as fertilizer: Bioaccessibility and Phytoavailability. Eastern Analytical Symposium and Exposition, Somerset, New Jersey, USA, Nov. 15-18, **2010**.
8. **Tsanangurayi Tongesayi, Eric. J. Byam, Andrea Grafton.** Electrochemical analysis of roxarsone, 3-nitro-4-hydroxyphenylarsonic, using palladium, gold and platinum electrodes. 238th ACS National Meeting, Washington, DC, USA, August 16-20, **2009**. **NOTE:** The same paper was presented at the Sci-Mix and General Sessions. Only a few outstanding papers are selected for the Sci-Mix session. We were very happy that our paper made it to the Sci-Mix session.
9. **Tsanangurayi Tongesayi ***, E. J. Byam, Sarah B. Keyser and M. J. Crounce. Mechanism of the sorption and desorption of phosphate on Fe 2O 3: Effect of fulvic acid and pH. Eastern Analytical Symposium and Exposition, Somerset, New Jersey, USA, Nov. 17-20, **2008**.
10. **Tsanangurayi Tongesayi ***, E. J. Byam, Sarah B. Keyser and M. J. Crounce. Sorption and desorption properties of phosphate on Fe 2O 3: Effect of fulvic acid and pH. The 4 th International Conference on Environmental Science and Technology, Houston, Texas, USA, **July 28-31, 2008**.
11. **Tongesayi, Tsanangurayi** and Ronald B. Smart. (i) Detection of As(III) in the Presence of Fulvic Acid by Square-Wave Cathodic Stripping Voltammetry, (ii) Kinetics of the reduction of As(V) to As(III) by Fulvic Acid in Aqueous Solution. Eastern Analytical Symposium and Exposition, Somerset, New Jersey, United States, Nov. 13-16, **2006**.
12. **Tongesayi, Tsanangurayi** and Ronald B. Smart. Mechanism of the reduction of As(V) to As(III) by Suwannee River Fulvic Acid Under Natural Water Conditions . 44th Annual Eastern Analytical Symposium and Exposition, Somerset, New Jersey, United States, Nov. 14-17, **2005**.
13. **Tongesayi, Tsanangurayi** and Ronald B. Smart. Mechanism of the reduction of As(V) to As(III) by Suwannee River Fulvic Acid Under Natural Water Conditions . Fall 2005 ECAS Research Poster Session, Morgantown, West Virginia, United States, October 12, **2005**.
14. **Tongesayi, Tsanangurayi** and Ronald B. Smart. AEI. Arsenic speciation: The role of dissolved organic matter in the reduction of As(V) to As(III). 230th ACS National Meeting, Washington, DC, United States, Aug. 28- Sept. 1, **2005**, ENVR-150.
15. **Tongesayi, Tsanangurayi.** Gold panning and mercury pollution of the environment in Zimbabwe. Faculty seminar series, *Bindura University, Zimbabwe*, **1999**.
16. **Tongesayi, Tsanangurayi.** Impact of gold panning and artisanal gold mining on the levels of mercury in Zimbabwe water systems, *Bradford University, UK*, **1999**.

Invited Seminar Presentations

17. **Tsanangurayi Tongesayi.** Environmental biogeochemistry, toxicology and analytical method development. *Bindura University of Science Education, Zimbabwe*, June 9, **2011**.
18. **Tsanangurayi Tongesayi.** Climate change, Sustainability and the African Environment. *Bindura University of Science Education, Zimbabwe*, June 9, **2011**.

19. Tsanangurayi Tongesayi. (i) Reduction of As(V) to As(III) by dissolved organic matter under natural water conditions. (ii) Analysis of As(III) in the presence of organic matter by square wave cathodic stripping voltammetry. *University of Zimbabwe Department of Chemistry, University of Zimbabwe, Zimbabwe, August 9, 2007.*

Research Press Conferences & Press Releases

American Chemical Society Press Conference

1. "Plastic bottle" solution for arsenic-contaminated water threatening 100 million people. ACS National Meeting, Denver, CO. August 31, **2011**

<http://www.ustream.tv/recorded/16989574>

American Chemical Society Press Conference

1. "Plastic bottle" solution for arsenic-contaminated water threatening 100 million people. ACS National Meeting, Denver, CO. August 31, **2011**

http://portal.acs.org/portal/acs/corg/content?nfpb=true&pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_028110&use_sec=true&sec_url_var=region1&uuid=944d5759-3237-4aec-9fdc-c714249d4c9a

NOTE: Barely a week after the press conference & press release, this research was featured in over 40 International Science and Environmental Media Outlets.

Grants & Grant Proposals

1. NSF Career Grant Proposal 2008/2010 (\$745,747.00): Redox and Catalytic Properties of Magnetic Iron Oxide Nanoparticles: Implications and Potential Applications. *Not funded*
2. NSF Career Grant Proposal 2008/2009 (\$1,414,924.00): Environmental Nanotechnology. *Not Funded*
3. Monmouth University Grant-In-Aid for creativity 2009. *Funded* (\$1,300.0)
4. Monmouth University Grant-In-Aid for creativity 2007. *Funded* (\$2,000.0)

References

Can be provided upon request