




Dr. Md. Nazmul Alam

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Education

- 2016 **Ph.D. in Analytical Chemistry, University of Waterloo, Ontario, Canada**
Thesis title: Insight into Quantitation of Solid-phase Microextraction
Thesis supervisor: Professor Dr. Janusz Pawliszyn
- 2011 **M.S. in Inorganic Chemistry, Western University, Ontario, Canada**
Thesis title: Effect of Mismatch Positions on Electrochemical Detection of Single-Nucleotide Mismatches
Thesis supervisor: Professor Dr. Bernhartz Kraatz
- 2007 **Diploma (Post Graduate) in Environmental Chemistry, Tokyo Institute of Technology, Tokyo, Japan**
Thesis title: Improvement of Pd(II) Adsorption Performance of Condensed-tannin Gel by Amine Modification
Thesis supervisor: Professor Dr. Yoshio Nakano
- 2004 **M.S. in Inorganic Chemistry, Rajshahi University, Bangladesh**
Thesis supervisor: Professor Dr. Saidul Islam
- 2002 **B.Sc. in Chemistry, Rajshahi University, Bangladesh**
Thesis supervisor: Professor Dr. Saidul Islam

Teaching Experience

Graduate Teaching Assistant, Department of Chemistry, University of Waterloo, Ontario, Canada **2011 - 2016**

- Supervised over 200 students doing experiments and writing up professional laboratory reports; arranged weekly meetings to evaluate the students' academic progress.
- Taught two general chemistry lab courses for two terms, providing hands-on instruction and guidance to students.
- Instructed four terms of bioanalytical chemistry lab courses, ensuring students developed practical skills in the field.
- Led one term of analytical chemistry courses, delivering comprehensive lessons and fostering a deep understanding of the subject matter.

Graduate Teaching Assistant, Department of Chemistry, Western University, Ontario, Canada **2009 - 2011**

- Developed and delivered presentations twice a week to 2 sections of undergraduate students;
- Supervised more than 80 students doing experiments and writing up professional laboratory reports;
- Evaluate the students' academic progress and help them prepare for exams.
- Set up instruments in the lab and maintained an organized and efficient workspace.

Assistant Professor, Department of Chemistry, Shah Jalal University of Science & Technology, Sylhet, Bangladesh **2008-2009**

- Successfully taught and mentored students of various sections from first year to fourth year students. Developed engaging lesson plans and provided hands-on guidance to enhance their understanding of the subject matter.
- Conducted inquiry-based group discussions which aired ideas to reach consensus on chemistry concepts and experimental design.
- Mentored undergraduate students in their research projects and provided guidance on experimental design and data analysis.

Lecturer, Department of Chemistry, Shah Jalal University of Science & Technology, Sylhet, Bangladesh **2005-2008**

- Instructed a range of undergraduate courses including Electrochemistry, Inorganic Chemistry, and Analytical Chemistry.
- Conducted undergraduate chemistry labs, providing hands-on instruction and guidance to students.
- Developed and administered exam questions, proctored exams, and graded student assessments.
- Assumed administrative responsibilities for the examination committee, ensuring smooth operations and adherence to protocols.

Research Experience

Senior Scientist (Analytical Development), Deciem Inc. Canada

Jul 2023 - Present

- Conduct thorough investigations into product-related issues, compatibility studies, and provide valuable technical expertise to support deviations and other product investigations.
- Skillfully analyze data, document findings, and generate comprehensive reports in accordance with DECIEM Standard Operating Procedure (SOP), cGLP, and cGMP guidelines.
- Offer technical support and training to team members, assisting with troubleshooting, procedure implementation, instrument setup, and method-related concerns.
- Provide expert guidance in designing and implementing analytical methods during the developmental stage.
- Drive laboratory growth by developing efficient workflows and standard procedures for new and existing instrumentation and processes.
- Proactively identify and address potential equipment or supply issues, taking appropriate action to solve or prevent problems.
- Perform calibrations and routine maintenance of analytical instrumentation, ensuring accurate and reliable results. Also, review data, write protocols, and generate reports.

Scientist II, Dalriada Drug Discovery Inc. Canada

Aug 2021 - Feb 2023

- Developed and validated analytical methods for quantifying drug concentrations in biological matrices with chromatography and mass spectrometry.
- Performed adsorption, distribution, metabolism and excretion (ADME) assays, drug transporter CYP450 inhibition, plasma protein binding (PPB) and measurement of physicochemical properties.
- Lead drug discovery projects, targeted drug metabolism studies and non compartmental analysis (NCA) for CNS drugs to evaluate pharmacokinetics parameters.

LCMS Scientist, Diteba Inc, Canada

Sep 2019 - Jul 2021

- Developed and validated analytical LCMS/MS methods for the analysis of specialized lipids (resolvins) in human plasma, breast milk and saliva.
- Studied in-vitro permeation of drug products from various manufacturers through human skin in support of FDA requirements (bio-equivalence studies) for new drug products.
- Planned and organized experiments, analyzed data, wrote reports according to the quality assurance protocols for FDA submission.
- Communicated efficiently with internal stakeholders (managers, supervisors, collaborators, teammates) via telephone and in person in order to provide guidance and advice about analytical methods.
- Solved analytical method related problems by applying chemistry knowledge regarding sample preparation of stability of analytes in sample matrices or during sample processing.

Researcher Associate, Ontario Ministry of Environment, Conservation and Parks, Canada

May 2018 - Feb 2019

- Developed and validated LC-MS methods with high resolution mass spectrometry for analysis of microcystins in fish and water samples.
- Prepared reagents, buffers and standards in support of laboratory operations.
- Analyzed and interpreted mass spectrometry data with Python programming language.

Awards

- 2016 **Award of Excellence:**
By The 32nd International Symposium on Microscale Separations and Bioanalysis Niagra-on-the-Lake, Canada
- 2016 **Analyst Poster Prize**
By Royal Society of Chemistry Niagra-on-the-Lake, Canada
- 2013 **Outstanding Graduate Teaching Assistantship Award**
Department of Chemistry, University of Water, Ontario, Canada
- 2006 **Tokyo Tech UNESCO International Research Fellowship**
By UNESCO & Government of Japan, Tokyo Tech, Japan
- 2005 **Gold Medal**, By Rajshahi University, Bangladesh

Professional Development

Project Management:

Wrike Elite 100 Award (2024): Honored as one of the top 100 Wrike users globally for demonstrating excellence and innovation in project management. Successfully implemented the Wrike platform within our company to enhance productivity and workflow efficiency. [Link](#)

Contributions to Scientific Knowledge:

Reviewed manuscripts for peer-reviewed journals, contributing to advancements in analytical chemistry. This demonstrated strong writing skills and adherence to rigorous scientific standards in all publications. [Link](#)

Laboratory Operations:

Set up and maintained laboratory instruments, managed the procurement of lab equipments, and maintained detailed log files for instruments and chemicals. Oversaw laboratory waste management and facilitated group meetings to ensure effective communication and collaboration within the team.

Collaborators

- Dr. Mohtashim Shamsi, Associate Professor, Southern Illinois University Carbondale, USA
- Dr. Emanuela Gionfriddo, Associate Professor at University at Buffalo, Buffalo, NY, USA
- Dr. Sanela Martic, Associate Professor at Trent University, Canada
- Dr. Barbara Bojko, Professor of Medical and Pharmaceutical Sciences, Poland
- Dr. Nathaly Reyes Garcés, Senior Scientist, Proteomics & Metabolomics, at AstraZeneca, Gaithersburg, USA
- Dr. Hamed Piri-Moghadam, Associate Principal Scientist, Analytical R&D South San Francisco, USA
- Dr. Ezel Boyaci, Assoc. Prof. Middle East Technical University Türkiye

Journal Publications

1. **Md. Nazmul Alam**; Emir Nazdrajić; Varoon Singh; Marcos Tascon; Janusz Pawliszyn, *Effect of Transport Parameters and Device Geometry on Extraction Kinetics and Efficiency in Direct Immersion Solid-phase Microextraction*, *Analytical Chemistry*, **2018** (Journal Impact Factor: 8.008) [Link](#)
2. Nathaly Reyes-Garcés; Emanuela Gionfriddo; German Augusto Gómez-Ríos; **Md. Nazmul Alam**; Ezel Boyacı; Barbara Bojko; Varoon Singh; Jonathan Grandy; Janusz Pawliszyn; *Effect of Binding Components in Complex Sample Matrices on Recovery in Direct Immersion Solid-Phase Microextraction: Friends or Foe?* *Analytical Chemistry*, **2018** (Journal Impact Factor: 8.008) [Link](#)
3. Nathaly Reyes-Garcés; **Md Nazmul Alam**; Janusz Pawliszyn; *The effect of hematocrit on solid-phase microextraction*, *Analytica Chimica Acta*, **2018** (Journal Impact Factor: 6.4) [Link](#)
4. Nathaly Reyes-Garcés; Emanuela Gionfriddo; German Augusto Gómez-Ríos; **Md. Nazmul Alam**; Ezel Boyacı; Barbara Bojko; Varoon Singh; Jonathan Grandy; Janusz Pawliszyn; *Advances in Solid Phase Microextraction and Perspective on Future Directions*, *Analytical Chemistry*, **2018** (Journal Impact Factor: 8.008) [Link](#)
5. **Md. Nazmul Alam**; Luis Ricardez-Sandoval; Janusz Pawliszyn; *Calibrant Free Sampling and Enrichment with Solid-Phase Microextraction: Computational Simulation and Experimental Verification*, *Industrial & Engineering Chemistry Research*, **2017** (Journal Impact Factor: 4.2) [Link](#)
6. Érica A. Souza-Silva; Emanuela Gionfriddo; **Md. Nazmul Alam**; Janusz Pawliszyn; *Insights into the Effect of the PDMS-Layer on the Kinetics and Thermodynamics of Analyte Sorption onto the Matrix-Compatible Solid Phase Microextraction Coating*, *Analytical Chemistry*, **2017** (Journal Impact Factor: 8.008) [Link](#)
7. **Alam, M.N.**; Pawliszyn, J.; *Numerical Simulation and Experimental Validation of Calibrant-Loaded Extraction Phase Standardization Approach*; *Analytical Chemistry*, **2016** (Journal Impact Factor: 8.008) [Link](#)
8. **Md. Nazmul Alam**; Luis Ricardez-Sandoval; Janusz Pawliszyn; *Numerical modeling of solid-phase microextraction: binding matrix effect on equilibrium time*; *Analytical Chemistry*, **2015** (Journal Impact Factor: 8.008) [Link](#)
9. Fuyou Du; **Md. Nazmul Alam**; Janusz Pawliszyn; *Aptamer-functionalized solid phase microextraction-liquid chromatography/tandem mass spectrometry for selective enrichment and determination of thrombin*, *Anal Chim Acta*, **2014** (Journal Impact Factor: 6.2) [Link](#)
10. **Alam, Md Nazmul**; Shamsi, Mohtashim Hassan; Kraatz, Heinz-Bernhard, *Scanning positional variations in single-nucleotide polymorphism of DNA: an electrochemical study*; *Analyst*, **2012** (Journal Impact Factor: 5.3) [Link](#)
11. **Alam, M.N.**; Sarkar, S.M., *Mesoporous MCM-41 supported N-heterocyclic carbene-Pd(II) complex for Suzuki coupling reaction*, *Reaction Kinetics, Mechanisms and Catalysis* **2011** (Journal Impact Factor: 1.7) [Link](#)
12. **Alam, Md. Nazmul**; Sarkar, Shaheen M.; Miah, Md. Rezwan; *Heterogeneous Heck reaction catalysed by silica gel-supported 1,2-diaminocyclohexane-Pd complex*, *Reaction Kinetics and Catalysis Letters*, **2009** (Journal Impact Factor: 1.88) [Link](#)
13. **Md. Nazmul Alam**, *Highly efficient silica gel-supported 1,2-diaminocyclohexane-Pd catalyst for Suzuki-Miyaura and Sonogashira coupling reactions*. *Reaction Kinetics and Catalysis Letters* **2009** (Journal Impact Factor: 1.88) [Link](#)
14. Kim, Y.-H.; **Alam, M.N.**; Marutani, Y.; Ogata, T.; Morisada, S.; Nakano, Y. *Improvement of Pd(II) adsorption performance of condensed-tannin gel by amine modification*; *Chemistry Letters* **2009** (Journal Impact Factor: 1.4) [Link](#)
15. Mahzuz, H.M.A.; Alam, R.; **Alam, M.N.**; Basak, R.; Islam, M.S; *Use of arsenic contaminated sludge in making ornamental bricks*; *International Journal of Environmental Science and Technology*, **2009** (Journal Impact Factor: 3.1) [Link](#)

Conference Presentations

1. **Md. Nazmul Alam**; Lewis Ricardez-Sandoval and Janusz Pawliszyn; *Rapid Calibration-free Sampling and Enrichment with Solid-phase Microextraction: Numerical Modeling and Experimental Verification*, 100th Canadian Chemistry Conference and Exhibition, **Toronto, 2017**, Canada
2. **Md. Nazmul Alam**, Fardin Ahmadi and Janusz Pawliszyn, *Factors Affecting Accuracy in Time Weighted Average Concentration Determination with Adsorptive Passive Samplers*, 9th International Passive Sampling Workshop and Symposium, **Toronto, 2017**, Canada
3. **Md. Nazmul Alam** and Janusz Pawliszyn; *Sorption and desorption kinetics involved in SPME with a computational model*, 32nd International Symposium on Microscale Separations and Bioanalysis (MSB) **2016**, Niagra Falls, Canada
4. **Md. Nazmul Alam** and Janusz Pawliszyn, *How does SPME work?*, 32nd International Symposium on Microscale Separations and Bioanalysis (MSB) **2016**, Niagra Falls, Canada
5. **Md Nazmul Alam**; Fardin Ahmadi; Lewis Ricardez-Sandoval and Janusz Pawliszyn; *Justification of Kinetic Calibration in Pre-Equilibrium Solid Phase Microextraction with a Mathematical Model and Computational Simulation*, Pittcon, **2016**, Atlanta, USA
6. **Md. Nazmul Alam**; Fuyou Du, and Janusz Pawliszyn, *Aptamer Functionalized Solid Phase Microextraction for Selective Enrichment of Thrombin*, Pittcon **2016**, Atlanta, USA
7. **Md. Nazmul Alam**; Y. H. Kim and Y. Nakano *Enhanced adsorption property of condensed tannin gel for Pd(II) recovery by amine modification*, 21 Conference of the Japan society on adsorption, **2007**, Tokyo, Japan