

Sameera R. Gunatilake

College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka

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Profile

- A highly self-motivated researcher in the field of analytical and environmental chemistry.
- A qualified and experimental educationist in tertiary education.
- An actively involved administrator in the education industry.

Research Interests

- Physicochemical characterization and modification of carbonaceous adsorbents.
- Application of biochar in soil amendment and water remediation schemes.
- Compensation of matrix interferences associated with ion selective electrodes.
- Analytical method development for the determination of residue small organic molecules in environmental matrices.

Education

[Mississippi State University](#), Mississippi State, USA 2009 – 2014

PhD, Analytical Chemistry

- Dissertation Title: Improved methods for the analysis of estrogen residues in environmental aqueous matrices.
- Advisor: Prof. Todd Mlsna

[Institute of Chemistry Ceylon](#), Rajagiriya, Sri Lanka 2003 – 2007

Grad. Chem., First Class Honors

- Dissertation Title: Determination of nicotine levels of selected legal and illegal cigarettes available in Sri Lankan market.
- Advisors: Emerit. Prof. Subramaniam Sotheeswaran & Dr. Sisira Weliwegamage

[Dharmaraja College](#), Kandy, Sri Lanka 1987 – 2001

Primary and Secondary Education

Employment

[College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka](#) January 2015 – Present
Senior Lecturer II

[Department of Chemistry, Mississippi State University, USA](#) August 2009 – December 2014
Graduate Teaching / Research Assistant

[College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka](#) February 2008 – June 2009
Graduate Teaching Assistant

Asiana Education Development October 2007 – January 2008
Program Analyst

Relevant Skills

- Competent in handling and troubleshooting of analytical instruments such as AAS, FTIR, UV-Vis, ICP-MS, Fluorescence spectrophotometer, GC/MS, GC × GC/MS, HPLC-UV, LC/MS/MS and the Microwave digester.
- Expertise in analytical method development and validation.
- Experienced in carbonaceous adsorbent characterization: point of zero charge, cation exchange capacity, surface functionality and acidity, etc.
- Experienced in surface adsorption: surface kinetics and thermodynamics, sorption mechanisms, isotherms and capacities, etc.

Peer-Reviewed Scientific Publications

Total Number of Citations in Scopus and Google Scholar

In Google Scholar: 330 In Scopus: 243 (h-index: 11; i10-index: 11)

Book Chapters

- [1] Welikala, U.; Navarathna, C. M.; Nawalage, S.; Sarkar, B.; Mlsna, T. E.; **Gunatilake, S. R.**, 4 Analytical Methods for Particulate Plastics in Soil and Water. *Particulate Plastics in Terrestrial and Aquatic Environments* 2020, 51.
- [2] Navarathna, C.; Alchouron, J.; Liyanage, A.; Herath, A.; Wathudura, P.; Nawalage, S.; Rodrigo, P.; **Gunatilake, S.**; Mohan, D.; Pittman, C.; Mlsna, T., Recent Developments in Aqueous Arsenic(III) Remediation Using Biomass-Based Adsorbents. In *Contaminants in Our Water: Identification and Remediation Methods*, American Chemical Society: 2020; Vol. 1352, pp 197-251.
- [3] Gunarathne, V.; **Gunatilake, S. R.**; Wanasinghe, S. T.; Atugoda, T.; Wijekoon, P.; Biswas, J. K.; Vithanage, M., 7 - Phytoremediation for E-waste contaminated sites. In *Handbook of Electronic Waste Management*, Prasad, M. N. V.; Vithanage, M.; Borthakur, A., Eds. Butterworth-Heinemann: 2020; pp 141-170.
- [4] Peiris, C.; **Gunatilake, S. R.**; Wewelwela, J. J.; Vithanage, M., Biochar for Sustainable Agriculture: Nutrient Dynamics, Soil Enzymes, and Crop Growth. In *Biochar from Biomass and Waste*, Elsevier: 2019; pp 211-224.

Review Articles

- [1] Peiris, C., Nawalage, S., Wewelwela, J. J., **Gunatilake, S. R.***, & Vithanage, M., Biochar based sorptive remediation of steroidal estrogen contaminated aqueous systems: A critical review. *Environmental Research* **2020**, 110183.
- [2] Wathudura, P. D.; Kavinda, T.; **Gunatilake, S. R.***, Determination of steroidal estrogens in food matrices: current status and future perspectives. *Current Opinion in Food Science* **2019**, 28, 104-113.
- [3] Peiris, C.; **Gunatilake, S. R.**; Mlsna, T. E.; Mohan, D.; Vithanage, M., Biochar based removal of antibiotic sulfonamides and tetracyclines in aquatic environments: a critical review. *Bioresource Technology* **2017**, 246, 150-159.
- [4] **Gunatilake, S. R.***; Munasinghe, V. K.; Ranaweera, R.; Mlsna, T. E.; Xia, K., Recent advancements in analytical methods for the determination of steroidal estrogen residues in environmental and food matrices. *Analytical Methods* **2016**, 8 (28), 5556-5568.

- [1] Wathudura, P. D.; Peiris, C.; Navarathna, C. M.; Mlsna, T. E.; Kaumal, M. N.; Vithanage, M.; **Gunatilake, S. R.***, Microwave and open vessel digestion methods for biochar. *Chemosphere* **2020**, 239, 124788.
- [2] Peiris, C.; Nayanathara, O.; Navarathna, C. M.; Jayawardhana, Y.; Nawalage, S.; Burk, G.; Karunanayake, A. G.; Madduri, S. B.; Vithanage, M.; Kaumal, M. N.; Mlsna, T. E.; Hassan, E. B.; Abeysundara, S.; Ferez, F.; **Gunatilake, S. R.***, The influence of three acid modifications on the physicochemical characteristics of tea-waste biochar pyrolyzed at different temperatures: a comparative study. *RSC Advances* **2019**, 9 (31), 17612-17622.
- [3] Navarathna, C. M.; Karunanayake, A. G.; **Gunatilake, S. R.**; Pittman Jr, C. U.; Perez, F.; Mohan, D.; Mlsna, T., Removal of Arsenic (III) from water using magnetite precipitated onto Douglas fir biochar. *Journal of environmental management* **2019**, 250, 109429.
- [4] Karunanayake, A. G.; Navarathna, C.; **Gunatilake, S. R.**; Crowley, M.; Anderson, R.; Mohan, D.; Perez, F.; Pittman, C. U.; Mlsna, T. E., Fe₃O₄ Nanoparticles Dispersed on Douglas Fir Biochar for Phosphate Sorption. *ACS Applied Nano Materials* **2019**.
- [5] Jayawardhana, Y.; **Gunatilake, S. R.**; Mahatantila, K.; Ginige, M. P.; Vithanage, M., Sorptive removal of toluene and m-xylene by municipal solid waste biochar: Simultaneous municipal solid waste management and remediation of volatile organic compounds. *Journal of environmental management* **2019**, 238, 323-330.
- [6] Qiu, H.; Sun, D.; **Gunatilake, S. R.**; She, J.; Mlsna, T. E., Analysis of trace dicyandiamide in stream water using solid phase extraction and liquid chromatography UV spectrometry. *Journal of Environmental Sciences* **2015**, 35, 38-42.
- [7] Karunanayake, A. G.; **Gunatilake, S. R.**; Ameer, F. S.; Gadogbe, M.; Smith, L.; Mlsna, D.; Zhang, D., Undergraduate Laboratory Experiment Modules for Probing Gold Nanoparticle Interfacial Phenomena. *Journal of Chemical Education* **2015**, 92 (11), 1924-1927.
- [8] **Gunatilake, S. R.**; Kwon, J.-W.; Mlsna, T. E.; Xia, K., A novel approach to determine estrogenic hormones in swine lagoon wastewater using the QuEChERS method combined with solid phase extraction and LC/MS/MS analysis. *Analytical Methods* **2014**, 6 (23), 9267-9275.
- [9] **Gunatilake, S. R.**; Clark, T. L.; Rodriguez, J. M.; Mlsna, T. E., Determination of five estrogens in wastewater using a comprehensive two-dimensional gas chromatograph. *Analytical Methods* **2014**, 6 (15), 5652-5658.
- [10] **Gunatilake, S. R.**; Craver, S.; Kwon, J.-W.; Xia, K.; Armbrust, K.; Rodriguez, J. M.; Mlsna, T. E., Analysis of Estrogens in Wastewater Using Solid-Phase Extraction, QuEChERS Cleanup, and Liquid Chromatography/Tandem Mass Spectrometry. *Journal of AOAC International* **2013**, 96 (6), 1440-1447.

(* = Corresponding Author)

Invited research talks

- [1] Gunatilake, S. R.; Biochar: waste to value, Conference on Chemical Technology for Value addition to Local Recourses, Sri Lanka, 2020.
- [2] Gunatilake, S. R.; Biochar for a Sustainable Environment, 3rd International Conference on "Renewable Energy and Sustainable Environment, 2019; Pollachi, Tamil Nadu, India.
- [3] Gunatilake, S. R.; Utilization of QuEChERS method for the determination of residue estrogens in the environment, National Conference on Environmental Pollutants: Impact, Assessment and Remediation, New Delhi, 2016.

Selected conference publications

- [1] Nawalage, S.; Kaumini, G.; **Gunatilake, S.** In *Study of the Effect of Incorporating a Preconditioning Step for the Adsorption of Methylene Blue from Water by Douglas fir Biochar*, 4th International Conference on Advances in Computing and Technology (ICACT): 2019.
- [2] Kavinda, K.; Peiris, C.; **Gunatilake, S.** In *Sorptive Removal of Lead (II) from Aqueous Solution using Value Added Tea-Waste Biochar Produced Under Different Temperatures*, 4th International Conference on Advances in Computing and Technology (ICACT): 2019.
- [3] **Gunatilake, S. R.**; Steelhammer, S.; Kwon, J.-W.; Xia, K.; Armbrust, K.; Rodriguez, J. M.; Mlsna, T. E. In *Improved methods for analyzing trace level estrogens in wastewater*, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, USA: 2013.
- [4] **Gunatilake, S. R.**; Rodriguez, J. M.; Mlsna, T. E. In *Determination of five estrogens in wastewater using a comprehensive 2D gas chromatograph*, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, USA: 2014.

Research Grants Awarded

- [1] Institute of Chemistry Ceylon, Research Grant (16-2), 2016. Amount: 2, 580, 000 LKR.
- [2] Hayleys, Alumex (Pvt) Ltd, Industrial research Grant, 2020. Amount: 600, 000 LKR.

Peer Reviewer for the Following Journals

Groundwater for Sustainable Development, Environmental Technology & Innovation, Science of the Total Environment, Environmental International, International Journal of Environmental Analytical Chemistry, Journal of Inorganic and Organometallic Polymers and Materials and ACS Omega.

Teaching Experience

Senior Lecturer, [College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka](#)

- Teaching the following course units; Freshman level: General Chemistry; Sophomore level: Separation Sciences; Junior/Senior Level: Instrumental Analysis, Advanced Chromatography, Atomic Spectroscopic Methods and Environmental Chemistry.
- Conducting the following laboratory classes; Freshman level: General Chemistry; Mid-level: Analytical Chemistry and Upper level: Analytical and Inorganic Chemistry.
- Teaching Physical Chemistry for the Diploma in Laboratory Technology Program.

Graduate Teaching Assistant, [Department of Chemistry, Mississippi State University, USA](#)

- Assisted the following laboratory classes; Freshman level: General chemistry I and II, Junior/Senior level: Instrumental Analysis I and II.
- Conducted tutoring sessions for general and analytical chemistry.

Graduate Teaching Assistant, [College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka](#)

- Assisted laboratory classes on Physical, Inorganic and Analytical Chemistry.
- Conducted tutorial classes on thermodynamics, separation sciences, classical and instrumental analysis.
- Taught analytical chemistry for the Diploma in Laboratory Technology Program.

Other Teaching Experiences

- Visiting Senior Lecturer, Southeastern University of Sri Lanka (2017)
- External Examiner (research): Department of Chemistry and Department of Nuclear Sciences, University of Colombo, Sri Lanka.

Administrative Positions and Responsibilities

Senior Lecturer, Academic Board & Council Member, [College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka](#)

Key Positions:

- Member of the Council, Institute of Chemistry Ceylon (2017-present).
- Honorary Editor, Institute of Chemistry Ceylon (2019/20).
- Honorary Assistant Treasurer, Institute of Chemistry Ceylon (2018/19).
- Secretary, Admissions and Ethical Practices Committee, Institute of Chemistry Ceylon (2017/18).
- Member of the Academic Board, Institute of Chemistry Ceylon (2015-2018, 2020).
- Coordinating Secretary, International Conference on “Frontiers in Chemical Technology” (2019/20).
- Officer In-Charge, HD Gunawardhana Instrument Center (2017-present).
- Officer In-Charge, Graduateship in Chemistry (GIC) enrollment campaign. (2018-present).
- Academic In-Charge of sports (2017-2019).

Other Notable Responsibilities:

- Actively participating in the accreditation process and curriculum revisions.
- Involved in the salary cadre committee and experienced in academic and non-academic salary formulae.
- A member of building, library, Prof JNO Fernando commemoration and sponsorship committee.
- Experienced in student mentoring and counselling.

Societies, Leadership and Volunteer Services

- President elect (2019/20) and Council member (2018/2020), Sri Lanka Academy of Young Scientists (SLAYS).
- Organizing committee member, 3MT competition and SLAYS International Conference (2018, 2019).
- President (2018/19), Council member (2016-2020), Alumni Association, College of Chemical Sciences (CCS).
- Founding member, and Sri Lanka coordinator, CCS Alumni Association, North America Chapter.
- Chief organizer of the ‘Manudamin diyabindak’ fund raiser project and the charity event of installing a water purification plant at Anuradhapura, organized by the Alumni Association, CCS (2018).
- Conference secretary, 1st International Conference on Frontiers in Chemical Technology (FCT) 2020.

Honors and Awards

- Ramakrishna Memorial Award, Institute of Chemistry Ceylon, 2020. (Awarded for an exceptional research contribution of an original nature in the field of Inorganic and/ or Analytical Chemistry and/or related areas)
- Presidential Award for Scientific Publications, Sri Lanka, 2017.
- Highly cited review article award, Bioresource Technology, 2018: [Bioresour. Technol. 246 \(2017\): 150-159](#).
- Outstanding Teaching Assistant – Upper division, Department of Chemistry, Mississippi State University, years 2013 and 2014.
- Institute of Chemistry Ceylon Entrance Scholarship, Institute of Chemistry Ceylon, 2003.
- Subject prizes for Experimental Chemistry and Information Technology (2007); Merit Bursary (2005); Graduateship in Chemistry, College of Chemical Sciences, Institute of Chemistry Ceylon.

Professional Designations

- Chartered Chemist (C.Chem.).
- Corporate member, Institute of Chemistry Ceylon, Sri Lanka (M.IChem.C.)
- Corporate member, Sri Lanka Association for the Advancement of Science (SLAAS)

Other Qualifications

- Staff and Educational Development Association, UK (SEDA) certified teacher of higher education.
- Occupational Safety and Health Administration (OSHA) certified chemist.

References

Can be arranged on request.