Doorae Lee

Postdoctoral Research Associate
Department of Chemical and Environmental Engineering
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EDUCATION

University of Arizona — AZ, United States
Ph.D., Chemical and Environmental Engineering — Dec. 2023
Advisor: Avelino Eduardo Sáez

Yonsei University — South Korea
M.S., Environmental Engineering — Feb. 2017
Advisor: Joon-Wun Kang

Yonsei University — South Korea
B.S., Environmental Engineering — Feb. 2015

RESEARCH EXPERIENCES

Postdoctoral Research Associate — Jan. 2024–Present
Chemical and Environmental Engineering, University of Arizona
Eduardo Sáez Lab (Co-advisor: Avelino Eduardo Sáez)
KORES Lab (Co-advisor: Vicky Karanikola)

Graduate Research Assistant/Associate — Aug. 2018–Dec. 2023
Chemical and Environmental Engineering, University of Arizona
Eduardo Sáez Lab (Advisor: Avelino Eduardo Sáez)

Graduate Research Assistant — Feb. 2015–Feb. 2017
Environmental Engineering, Yonsei University
Yonsei Ozone & AOP Lab (Advisor: Joon-Wun Kang)

PUBLICATIONS

Peer-reviewed Journal Articles

[4] Park, M.; **Lee, D.**; Snyder, S. A. Deconvolution of Size Exclusion Chromatograms: New insights into the Molecular Weight Distribution of Dissolved Organic Matter in Ozone and Biological Activated Carbon. *ACS ES&T Water*, **2021**, *1*(1), 125–133.

[3] **Lee, D.**[†]; Kwon, M[†].; Ahn, Y.; Jung, Y.; Nam, S.; Choi, I.; Kang, J. Characteristics of intracellular algogenic organic matter and its reactivity with hydroxyl radicals. *Water Research*, **2018**, *144*, 13–25.
[†]: These authors contributed equally to this work.

[2] Abrha, Y. W.; Kye, H.; Kwon, M.; **Lee, D.**; Kim, K.; Jung, Y.; Ahn, Y.; Kang, J. Removal of Algae, and Taste and Odor Compounds by a Combination of Plant-Mineral Composite (PMC)

Coagulant with UV-AOPs: Laboratory and Pilot Scale Studies. *Applied Sciences*, **2018**, *8*(9), 1502.

[1] Ahn, Y.; **Lee, D.**; Kwon, M.; Jung, Y.; Choi, I.; Nam, S.; Kang, J. Characteristic and fate of natural organic matter during UV oxidation processes. *Chemosphere*, **2017**, *184*, 960–968.

Submitted or in preparation

[9] Zimila, H.; Arnold, R. G.; Quanrud, D.; **Lee, D.**; Alyami, I. H.; Martínez, V.; Sáez, A. E. Assessing the Role of Dissolved Organic Matter Photosensitization in the Degradation of Trace Organic Compounds: A Review. **In preparation.**

[8] Martínez, V.; **Lee, D.**; Alyami, I. H.; Zimila, H.; Bautista, F.; Fuentes, M.; López, M. J.; Valencia, G.; Ramos, A.; Rojas, N.; Arnold, R. G.; Quanrud, D.; Sáez, A. E. Trace Organic Compounds and Photosensitizing Activity in Salvadoran Surface and Tap Water Sources: a First Look. **In preparation.**

[7] **Lee, D.**; Park, M.; Zimila, H.; Martínez, V.; Arnold, R. G.; Quanrud, D.; Sáez, A. E. Photosensitizing Effluent Organic Matter in an Effluent-receiving Constructed Wetlands: Relevance of Chromophoric and Molecular Composition to Singlet Oxygen Formation. **In preparation.**

[6] **Lee, D.**; Park, M.; Alyami, I. H.; Arnold, R. G.; Quanrud, D.; Sáez, A. E. Phototransformation of Trace Organic Contaminants: A Kinetic Study on Singlet Oxygen and Direct Photolysis. **In preparation.**

[5] **Lee, D.**; Alyami, I. H.; Zimila, H.; Arnold, R. G.; Quanrud, D.; Sáez, A. E. Fate and Phototransformation of Trace Organic Contaminants in an Effluent-dependent Stream. **In preparation.**

SELECTED PRESENTATIONS

[Oral] **Lee, D.**; Park, M.; Arnold, R. G.; Quanrud, D.; Rojas, N.; Martínez, V.; Saez, A. E., Photochemical degradation of trace organic compounds by singlet oxygen in wastewater effluent, American Chemical Society National Meeting & Exposition (ACS Spring 2022), San Diego, CA, Mar. 20–24, 2022.

[Oral] **Lee, D.**; Kwon, M.; Choi, I.; Kang, J., Effect of algogenic organic matter on the hydroxyl radical reactions during drinking water treatment, 2016 Water Quality Technology Conference & Exposition (WQTC 2016), Indianapolis, IN, Nov. 13–17, 2016.

[Oral] **Lee, D.**; Ahn, Y.; Kwon, M.; Choi, I.; Kang, J., Fate of natural organic matter during UV oxidation processes, 2015 Korean Society of Environmental Engineers Domestic Conference, Busan, South Korea, Oct. 28–30, 2015.

SKILLS

Analytical Instruments LC-MS/MS, HPLC, Fluorescence spectrophotometer, UV-Vis spectrophotometer, TOC analyzer, IC

Software	R, Microsoft Office, Formularity (FT-ICR MS), SMARTS (Sunlight Spectral Irradiation Modeling), Sigma-Plot, Origin, Chem3D

AWARDS & HONORS

Environmental Chemistry Graduate Student Award Honorable Mention — Jan. 2023
Recognized by American Chemical Society (ACS)

Graduate & Professional Student Council (GPSC) Travel Grant — Dec. 2021
Awarded by the University of Arizona ($1 K)

Outstanding Graduate Assistant Scholarship — Feb. 2015–Feb. 2017
Awarded by Yonsei University ($4 K per semester)

TEACHING EXPERIENCES

Graduate Teaching Assistance, University of Arizona — Jan. 2023–May. 2023
Fate and Transport Processes in Environmental Engineering

Graduate Teaching Assistance, Yonsei University — Mar. 2016–Jun. 2016
Water Treatment Process Engineering