

# Stanford

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## Sahar El Abbadi

Physical Science Research Scientist, Energy Science & Engineering

### Bio

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#### BIO

Sahar El Abbadi was a post-doctoral researcher in Energy Resources Engineering from Jan 2022 - Aug 2023. Her research focuses on developing circular economies by transforming waste methane into useful products. Methane, a potent greenhouse gas, is emitted atmosphere by industrial sources (wastewater treatment plants, landfill, fossil fuel extraction) because it is uneconomical to capture, clean and use. However, methane-consuming bacteria can transform this harmful pollutant into protein-rich cells and biodegradable polymers. Sahar's PhD research evaluated the economic potential of using these bacteria to reduce methane emissions while providing a new source of high-quality protein that can be used as a feed for agriculture and aquaculture. Sahar continues to expand on this work in considering the path to industrialization in both the United States and Bangladesh using methane produced at landfills. Sahar completed her Bachelor's degree at UC Berkeley (2012) in Environmental Engineering Science, and her MS (2015) and PhD (2021) in Civil & Environmental Engineering at Stanford.

#### ACADEMIC APPOINTMENTS

- Physical Science Research Scientist, Energy Science & Engineering

#### HONORS AND AWARDS

- Justice, Equity, Diversity & Inclusion (JEDI) Graduation Award, Stanford School of Engineering (2021)
- Centennial Teaching Assistant, Stanford School of Engineering (2020)

#### LINKS

- Personal Website: <https://www.saharelabbadi.com/>

### Teaching

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#### COURSES

2021-22

- Our Genome: THINK 68 (Aut)

### Publications

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#### PUBLICATIONS

- **Displacing fishmeal with protein derived from stranded methane** *NATURE SUSTAINABILITY*  
El Abbadi, S. H., Sherwin, E. D., Brandt, A. R., Luby, S. P., Criddle, C. S.  
2021
- **More than a fertilizer: wastewater-derived struvite as a high value, sustainable fire retardant** *GREEN CHEMISTRY*  
Kim, A. H., Yu, A. C., El Abbadi, S. H., Lu, K., Chan, D., Appel, E. A., Criddle, C. S.

2021

- **Membrane and Fluid Contactors for Safe and Efficient Methane Delivery in Methanotrophic Bioreactors** *JOURNAL OF ENVIRONMENTAL ENGINEERING*

Meraz, J., Dubrawski, K. L., El Abbadi, S. H., Choo, K., Criddle, C. S.  
2020; 146 (6)

- **Fate of Hexabromocyclododecane (HBCD), A Common Flame Retardant, In Polystyrene-Degrading Mealworms: Elevated HBCD Levels in Egested Polymer but No Bioaccumulation.** *Environmental science & technology*

Brandon, A. M., El Abbadi, S. H., Ibekwe, U. A., Cho, Y., Wu, W., Criddle, C. S.  
2019

- **Engineering the Dark Food Chain** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*

El Abbadi, S. H., Criddle, C. S.  
2019; 53 (5): 2273–87