Mohamed Farghali, Ph.D

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Objectives

My academic pursuits focus on wastewater and biomass management and recycling, bioenergy production, sustainability, and mitigating climate change. I am committed to advancing solutions that promote net-zero emissions and long-term environmental sustainability. Through interdisciplinary research, I aim to bridge the gap between scientific principles and practical applications, offering innovative approaches to address global environmental challenges.

Profile

Nationality: Egyptian

Birthday: 1/1/1987

Marital status: Married

Current Address: 657-0013 Kobe-shi, Nada-ku, Rokkodai-cho 9-2-702, Hyogo, Japan

Education

November 2021

PhD

PhD degree was obtained according to a channel collaboration system between Assiut University, Egypt, and Obihiro University of Agriculture and Veterinary Medicine, Japan.

Thesis Title: Hygienic treatment of animal manure and its applications

2018-2021

Visiting Researcher in Animal and Food Hygiene, Obihiro University of Agriculture and Veterinary Medicine (OUAVM), Japan

December 2015

MVSc, Faculty of Veterinary Medicine, Assiut University, Egypt

Thesis Title: Effect of Silver Nanoparticles on Bacterial Contaminants of Different Water Sources.

June 2009

BSc, Faculty of Veterinary Medicine, Assiut University, Egypt

Work history

2024/10 – now Post-Doc Fellow, Department of Agricultural Engineering and Socio-Economics, Kobe University, Japan

2022-2024 JSPS Post-Doc Fellow, Department of Agricultural Engineering and Socio-Economics, Kobe University, Japan

2021-2022 Specially Appointed Researcher, Graduate School of Animal and Food Hygiene, Obihiro University of Agriculture and Veterinary Medicine, Japan

2016-2018 Teaching Assistant in Animal Hygiene Department, Assiut University, Egypt

2011-2015 Researcher in Animal Hygiene Department, Assiut University, Egypt

Past Projects and Patents:

- Biogas production from various waste sources, including animal manure, bamboo, wastewater, municipal solid sludge, algae, leather wastes, and food waste, to assess the potential for bioenergy production, recycling nutrients, and mitigating global waste pollution.
- Investigation of the effect of metal additives, including iron and titanium oxide nanoparticles, on the anaerobic digestion of animal manure to optimize performance and reduce hydrogen sulfide emissions.
- Kinetic modeling of biogas generation using sigmoidal models.
- Analysis of nutrient availability in digestate obtained from the anaerobic digestion process to improve its biofertilization potential and explore the possibility of switching from chemical to organic fertilizers.
- Biodegradation of pollutants, including herbicides and antibiotics, in slurry obtained from the anaerobic digestion process to minimize their release into the environment.
- Evaluation of the treatment capabilities of constructed wetlands for biogas plant effluents and the potential for using treated water for multiple irrigation purposes or as drinking water.

- Analysis of the role of anaerobic digestion in decarbonization policy through recycling biochar within an anaerobic reactor and producing biochar from digestate for easy storage and transportation.
- Development of a prototype biogas plant for small-scale farmers in developing countries to provide a sustainable energy source and reduce greenhouse gas emissions.

Current Projects and Initiatives:

- Wastewater upcycling into volatile fatty acids (VFA) and bioplastics
- Ammonia and nutrient recovery from digestate using anaerobic membrane bioreactors
- Prototype biogas plant development
- Pyrolysis and co-gasification integration with anaerobic digestion
- Magnetite separation's role in pollutant removal from wastewater
- Minimizing environmental impact by biodegrading antibiotic pollutants in the digestate
- Algal cultivation in anaerobic digestate integrated with anaerobic membrane bioreactors

Water quality monitoring skills

Through my academic and research career, I have worked on several water quality characterizations, including physicochemical parameters and microbiological analysis.

I have experience with the following instruments/methods for monitoring water and industrial/municipal wastewater, and others:

1. Physicochemical parameters, such as pH using Horiba D-55, total solids (TS) and volatile solids (VS), and total suspended solids (TSS) using Standard Methods.
2. HACH DR3900 spectrophotometer for COD, ammonia, nitrite, nitrate–nitrogen, carbonate hardness, Phosphate, and Sulfide
3. Ion chromatography (IC-8100, Tosoh, Japan) for cations analysis like ammonium (NH_4^+), sodium (Na^+), potassium (K^+), calcium (Ca^{2+}), and magnesium (Mg^{2+}) using a TSKgel Super IC-CR column. In addition to anions analysis like chloride (Cl^-), nitrate (NO_3^-), sulfate (SO_4^{2-}), and phosphate (PO_4^{3-}) using a TSKgel Super IC-Anion HS column.

4. High-performance liquid chromatography (HPLC) with a Shimadzu LC-10AD system and a Shim-Pack SPR-H column for volatile fatty acid analysis, such as acetic, propionic, formic, butyric, and iso-butyric acids.
5. Gas chromatograph (GC-2014, Shimadzu, Japan) with a thermal conductivity detector, and a portable biogas analyzer (Biogas 5000, Geotech, UK) for CH_4, CO_2, N_2, O_2, and H_2 analysis.
6. Atomic absorption spectrophotometry (AAS) for iron (Fe) analysis.
7. Microbiological analysis and antibiotic resistance bacterial analysis using culturing techniques and PCR.

Other Skills

- Expertise in environmental sciences, particularly in wastewater, biomass, and bioenergy.
- Proficiency in conducting lab and field experiments.
- Experience with mathematical modeling and statistical analysis.
- Ability to work effectively in a team environment and individually.
- Strong analytical and problem-solving skills.
- Excellent in English and basic level in Japanese.
- Expertise in writing papers and publication of research papers in high-quality journals.
- Guest Editor in Current Opinion in Green and Sustainable Chemistry (2024) and Frontiers in Energy Research
- Editorial member (Reviewer) in many international Journals, such Bioresource Technology (14 reviews), Chemical Engineering Journal (2), Journal of Environmental Management (15), Sustainability (5), Bioengineered (3), Fermentation (3), International Journal of Ambient Energy (4), Journal of Environmental Chemical Engineering (2), SN Applied Sciences (2), Marine Pollution Bulletin (2), International Journal of Green Energy (2), Biomass & Bioenergy (1), Applied Energy (1), Journal of Cleaner Production (2), International Journal of Nanoscience (1), Case Studies in Thermal Engineering (1), International Journal of Thermofluids (1), Process Safety and Environmental Protection (1), Renewable and Sustainable Energy Transition (1), Scientific Reports (1), and Nature Communications (1).

Scholarship

- I obtained a scholarship from the Ministry of Higher Education, Egypt, from 2018 to 2021 (Egyptian-Japanese supervision for PhD degree)
- JSPS post-doc Fellowship from the Japan Society for the Promotion of Science from 2022 to 2024

Industrial Collaboration

- Collaborated with leading Japanese companies like Air Water INC and Biomass Research & Development Company.
- Developed innovative solutions to address sustainability and resource recovery challenges, benefiting both the industry and the environment.

Academic Thesis Supervisions

1. Title: "Effects of Biochar as an Additive on the Survival of Antibiotic-Resistant Bacteria (ARB) in Dairy Manure during Batch Mesophilic Anaerobic Digestion" Type: PhD thesis Year: 2024
2. Title: "Electrochemical Decolorization Coupled with Anaerobic Digestion for Sustainable Microalgae Cultivation Media: Upcycling Liquid Food Biomass" Type: PhD thesis Year: 2023
3. Title: "Resource Recycling of Liquid Dairy Biomass Using AnMBR and Microalgae Cultivation" Type: Master thesis Year: 2023
4. Title: "Overcoming Ammonia Inhibition in Continuous Methane Fermentation Operation with the Addition of Biochar" Type: Master thesis Year: 2023
5. Title: "Performance and Microbial Behavior in Ammonia Recovery AnMBR for Nitrogen Resource Recycling" Type: Master thesis Year: 2023
6. Title: "Effect of Anaerobic Digestion Conditions and Modification of Digestate Properties on Growth Characteristics of Microalgae": Master thesis Year: 2023.
7. Title: "Evaluation of decision-making of dairy farmers introducing biogas plants– A case of Hokkaido, Japan" Type: Master thesis Year: 2021
8. Title: "Potential of biogas production from anaerobic digestion of Seaweed biomass" Type: Master thesis Year: 2020
9. I co-supervised over 20 fourth-year undergraduate students' theses, guiding them toward graduation in Japan.

Selected Publications

Research Articles

1. You, J., **Mohamed Farghali**, Yoshida, G., Yamamoto, H., Iwasaki, M., Shimizu, K., Maseda, H., Andriamanohiarisoamanana, F. J., Ihara I. (2025). Biochar-assisted control of antibiotic-resistant bacteria and methane yield optimization in two-stage anaerobic digestion under organic load and antibiotic stress, Environmental Research, 279, 121679. **(Impact Factor, IF)**: 7.7.
2. Deka, T. J., Osman, A. I., **Mohamed Farghali**, Alengebawy, A., Baruah, D. C., & Rooney, D. W. (2025). Quantitative modelling of biohydrogen production from indian agricultural residues via dark fermentation. ChemistryOpen, e202400095. **IF**: 2.5.
3. You, J., **Mohamed Farghali**, Osman, A. I., Yoshida, G., & Ihara, I. (2024). Mechanisms of biochar-mediated reduction of antibiotic-resistant bacteria and biogas production enhancement in anaerobic digesters. Biochemical Engineering Journal, 109465. **IF**: 3.7.
4. You, J., Andriamanohiarisoamanana, F. J., **Mohamed Farghali**, Yoshida, G., Shimizu, K., Maseda, H., ... & Ihara, I. (2024). Unveiling antibiotic resistance dynamics in single and two-stage anaerobic digestion of dairy cow manure: Implications for environmental health. Process Safety and Environmental Protection, 190, 522-534. **IF**: 6.9.
5. Andriamanohiarisoamanana, F. J., **Mohamed Farghali**, I. M., Yoshida, G., Shiota, K., & Ihara, I. (2024). Impact of tannery wastes on anaerobic co-digestion: enhancing biogas production and process efficiency. *Collagen and Leather*, *6*(1), 19. **IF**: 6.8.
6. **Mohamed Farghali**, Andriamanohiarisoamanana, F. J., Yoshida, G., Shiota, K., & Ihara, I. (2024). Unleashing the potential of leather waste: Biogas generation and cost savings through semi-continuous anaerobic co-digestion. Journal of Cleaner Production, 141481. **IF**: 11.1.
7. **Mohamed Farghali**, Mohamed, I. M., Hassan, D., Iwasaki, M., Yoshida, G., Umetsu, K., & Ihara, I. (2023). Kinetic modeling of anaerobic co-digestion with glycerol: Implications for process stability and organic overloads. Biochemical Engineering Journal, 109061. **IF**: 3.7.
8. Lu, J., Jia, Z., Wang, P., Yang, X., Lin, P., Ren, L., & **Mohamed Farghali**. (2022). Restoration of acidified dry anaerobic digestion of food waste: Bioaugmentation of butyric acid-resistant microbes. Journal of Environmental Chemical Engineering, 10(1), 106935. **IF**: 7.7.
9. **Mohamed Farghali**, Shimahata, A., Mohamed, I. M., Iwasaki, M., Lu, J., Ihara, I., & Umetsu, K. (2022). Integrating anaerobic digestion with hydrothermal pretreatment for bioenergy production: Waste valorization of plastic containing food waste and rice husk. Biochemical Engineering Journal, 186, 108546. **IF**: 3.7.
10. **Mohamed Farghali**, Yuhendra, A. P., Mohamed, I. M., Iwasaki, M., Tangtaweewipat, S., Ihara, I., ... & Umetsu, K. (2021). Thermophilic anaerobic digestion of *Sargassum fulvellum* macroalgae: Biomass valorization and biogas optimization under different pretreatment conditions. Journal of Environmental Chemical Engineering, 9(6), 106405. **IF**: 7.7.

11. Yuhendra AP, **Mohamed Farghali**, Israa M.A. Mohamed, Masahiro Iwasaki, Suchon Tangtaweewipat, Ikko Ihara, Ryuichi Sakai, and Kazutaka Umetsu (2021). Potential of biogas production from the anaerobic digestion of *Sargassum fulvellum* macroalgae: Influences of mechanical, chemical, and biological pretreatments. Biochemical Engineering Journal, 175,108140. **IF**: 3.7.
12. **Mohamed Farghali**, Moustafa M. Ahmed, Saber Kotb, Masahiro Iwasaki, Ikko Ihara, and Kazutaka Umetsu (2021). Steady state of semi-continuous anaerobic digestion of cattle manure under the stress of adding iron and titanium oxide nanoparticles. Journal of Material Cycles and Waste Management, pp1–8. **IF**: 3.1
13. Shimahata, Atsushi, **Mohamed Farghali**, and Masahiko Fujii (2020). Factors influencing the willingness of dairy farmers to adopt biogas plants: A case study in Hokkaido, Japan. Sustainability, 12.18, 7809. **IF**: 3.9.
14. **Mohamed Farghali**, Maejima Mayumi, Kuramoto Syo, Aoki Satoshi, Yasui Seiichi, Sayoko Takashima, Hijiri Ono, Yuhendra AP, Takaki Yamashiro, Moustafa M. Ahmed, Saber Kotb, Masahiro Iwasaki, Ikko Ihara, and Kazutaka Umetsu, (2020). Potential of biogas production from manure of dairy cattle fed on natural soil supplement rich in iron under batch and semi-continuous anaerobic digestion. Bioresource Technology, 309, 123298. **IF**: 11.4.
15. **Mohamed Farghali**, Fetra J. Andriamanohiarisoamanana, Moustafa M. Ahmed, Saber Kotb, Yuki Yamamoto, Masahiro Iwasaki, Takaki Yamashiro, and Kazutaka Umetsu, (2020). Prospects for biogas production and H_2S control from the anaerobic digestion of cattle manure: The influence of microscale waste iron powder and iron oxide nanoparticles. Waste Management, 101, pp141–149. **IF**: 8.1.
16. **Mohamed Farghali**, Fetra J. Andriamanohiarisoamanana, Moustafa M. Ahmed, Saber Kotb, Takaki Yamashiro, Masahiro Iwasaki, and Kazutaka Umetsu, (2019). Impacts of iron oxide and titanium dioxide nanoparticles on biogas production: Hydrogen sulfide mitigation, process stability, and prospective challenges. Journal of Environmental Management, 240, pp160–167. **IF**: 8.7.

Selected 2023 and 2024 Conferences:

1. Kazutaka Ueno, Gen Yoshida, Fetra Andriamanohiarisoamanana, **Mohamed Farghali**, Ikko Ihara, Kazutaka Umezu, "Effects of Biochar Addition on Ammonia Inhibition Overcoming in Continuous Methane Fermentation," 2023 Agricultural Facilities Society Student and Young Researcher Presentation, February 18, 2023, University of Tsukuba.
2. Kazutaka Ueno, Gen Yoshida, Fetra Andriamanohiarisoamanana, **Mohamed Farghali**, Ikko Ihara, Kazutaka Umezu, "Effects of Biochar Addition on Overcoming Ammonia Inhibition in Anaerobic Digestion," 149th Kansai Agricultural and Food Engineering Society Meeting, March 7, 2023, Online.

3. Haru Nakashinai, Gen Yoshida, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Effects of Changes in Digestate Properties Due to Methane Fermentation Conditions and Modification on Microalgae Growth Characteristics," 2023 Joint Conference of Agricultural and Environmental Engineering Societies, P235, September 4, 2023, Tsukuba International Congress Center.
4. Kaho Sumino, Gen Yoshida, Fumihito Ikeda, Haru Nakashinai, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Recycling Liquid Dairy Biomass via Anaerobic MBR and Microalgae Cultivation," 2023 Joint Conference of Agricultural and Environmental Engineering Societies, P297, September 4, 2023, Tsukuba International Congress Center.
5. Soichiro Tsuji, Gen Yoshida, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, "Fermentation Performance and Microbial Community Analysis in Ammonia Recovery-Type Anaerobic MBR for Nitrogen Resource Recycling," 2023 Joint Conference of Agricultural and Environmental Engineering Societies, P297, September 4, 2023, Tsukuba International Congress Center.
6. Jingyi You, **Mohamed Farghali**, Masahiro Iwasaki, Gen Yoshida, Fetra J. Andriamanohiarisoamanana, Kazuya Shimizu, Hideaki Maseda, Ikko Ihara, "Effects of Biochar as an Additive on the Survival of ARB in Dairy Manure During Batch Mesophilic Anaerobic Digestion," 2023 Joint Conference of Agricultural and Environmental Engineering Societies, P294, September 4, 2023, Tsukuba International Congress Center.
7. Fetra Andriamanohiarisoamanana, **Mohamed Farghali**, Gen Yoshida, Kazuya Shiota, Ikko Ihara, "Performance Evaluation of Anaerobic Co-Digestion of Tannery Wastes and Wastewater," 2023 Joint Conference of Agricultural and Environmental Engineering Societies, P236, September 4, 2023, Tsukuba International Congress Center.
8. Kazutaka Ueno, Gen Yoshida, **Mohamed Farghali**, Ikko Ihara, Kazutaka Umezu, "Overcoming Ammonia Inhibition in Continuous Methane Fermentation with Biochar Addition," 34th Waste Management and Material Recycling Society, September 11, 2023, Osaka Institute of Technology.
9. Kazutaka Ueno, Gen Yoshida, **Mohamed Farghali**, Masahiro Iwasaki, Yasuhiro Sakai, Ikko Ihara, "Mitigating Ammonia Inhibition in Methane Fermentation by Retaining Electron Transfer Materials Using Magnetic Forces," 26th Japan Water Environment Symposium, P221, September 20, 2023, Osaka University.
10. Gen Yoshida, Fumihito Ikeda, Kaho Sumino, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Recycling Dairy Biomass via an Integrated Process of Anaerobic MBR and Microalgae Cultivation," P527, 58th Japan Water Environment Society, March 6–8, 2024, Kyushu University Ito Campus.
11. Yuka Tanaka, Ikko Ihara, Masahiro Iwasaki, **Mohamed Farghali**, Jingyi You, Gen Yoshida, Fetra J. Andriamanohiarisoamanana, Kazuya Shimizu, Hideaki Maseda, "Control of Antibiotic-Resistant Bacteria in Dairy Manure through Low-Temperature Methane Fermentation," P528, 58th Japan Water Environment Society, March 6, 2024, Kyushu University Ito Campus.

12. Kaede Tsukamoto, Gen Yoshida, Soichiro Tsuji, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, "Effects of Bio-Stimulation with VFA Addition on Ammonia Inhibition Mitigation in Anaerobic Digestion," P630, 58th Japan Water Environment Society, March 6, 2024, Kyushu University Ito Campus.
13. Moeri Miyahara, Gen Yoshida, Fumihito Ikeda, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Biochar-Added Anaerobic MBR for Treating Liquid Dairy Biomass," P668, 58th Japan Water Environment Society, March 6–8, 2024, Kyushu University Ito Campus.
14. Yuka Tanaka, Jingyi You, Gen Yoshida, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, Fetra J. Andriamanohiarisoamanana, Kazuya Shimizu, Hideaki Maseda, "Evaluation of Antibiotic-Resistant Pathogens in Dairy Manure During Low-Temperature Methane Fermentation," 2024 Agricultural Facilities Society Annual Conference, June 14, 2024, Okinawa Industry Support Center.
15. Haru Nakashinai, Gen Yoshida, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Modification of Methane Fermentation Digestate Using Electrochemical Methods for Microalgae Cultivation," 2024 Agricultural Facilities Society Annual Conference, June 14, 2024, Okinawa Industry Support Center.
16. Jun Hibiya, **Mohamed Farghali**, Masahiro Iwasaki, Gen Yoshida, Ikko Ihara, Taro Yuge, "Continuous Testing of Small-Scale Methane Fermentation Units for Producing Bio-Liquid Fertilizers in Small-Scale Dairy Farms," 2024 Agricultural Facilities Society Annual Conference, June 14, 2024, Okinawa Industry Support Center.
17. Ikko Ihara, Jun Hibiya, Satoshi Kimura, Masahiro Iwasaki, **Mohamed Farghali**, Gen Yoshida, Taro Yuge, "Resource Recycling and Agro-Livestock Cooperation in Small-Scale Dairy Farms Using Compact Methane Fermentation Units," 82nd Agricultural and Food Engineering Society Annual Meeting, September 7, 2024, Yamagata University.
18. Kaho Sumino, Gen Yoshida, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, "Recycling Liquid Dairy Biomass by Combining Anaerobic MBR and Microalgae Cultivation," 35th Waste Management and Material Recycling Society, September 9, 2024, Tsukuba International Congress Center.
19. Kaede Tsukamoto, Gen Yoshida, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, "Effects of VFA Addition on Microbial Community Changes in Ammonia Inhibition Mitigation During Methane Fermentation," 35th Waste Management and Material Recycling Society, September 9, 2024, Tsukuba International Congress Center.
20. Moeri Miyahara, Gen Yoshida, Masahiro Iwasaki, **Mohamed Farghali**, Ikko Ihara, "Effects of Biochar Addition in Anaerobic MBR for Treating Dairy Wastewater," 34th Waste Management and Material Recycling Society, September 9, 2024, Tsukuba International Congress Center.
21. Haru Nakashinai, Gen Yoshida, **Mohamed Farghali**, Masahiro Iwasaki, Ikko Ihara, "Modification of Methane Fermentation Digestate by Electrochemical Ammonia Oxidation for Microalgae Cultivation," 27th Japan Water Environment Symposium, September 11, 2024, Iwate University.

Selected Review Articles

1. Hua, J., Wang, R., Hu, Y., Chen, Z., Chen, L., Osman, A. I., **Mohamed Farghali**... & Yap, P. S. (2025). Artificial intelligence for calculating and predicting building carbon emissions: a review. Environmental Chemistry Letters, 1-34. **IF**: 15.1.
2. Osman, A. I., Nasr, M., Aniagor, C. O., **Mohamed Farghali**, Huang, M. M., Chin, B. L. F., ... & Yap, P. S. (2025). Synergistic technologies for a circular economy: upcycling waste plastics and biomass. Frontiers of Chemical Science and Engineering, 19(1), 2. **IF**: 4.3.
3. **Mohamed Farghali**, Chen, Z., Osman, A. I., Ali, I. M., Hassan, D., Ihara, I., ... & Yap, P. S. (2024). Strategies for ammonia recovery from wastewater: a review. Environmental Chemistry Letters, 1-53.4. **IF**: 15.1.
4. Osman A. I. 1, **Mohamed Farghali**, Rashwan A. K. (2024). Life Cycle Assessment of Biochar as a Green Sorbent for Soil Remediation. Current Opinion in Green and Sustainable Chemistry. 100882. **IF**: 9.3.
5. Chen, L., Yang, M., Chen, Z., Xie, Z., Huang, L., Osman, A. I., **Mohamed Farghali** ... & Yap, P. S. (2024). Conversion of waste into sustainable construction materials: A review of recent developments and prospects. Materials Today Sustainability, 100930. **IF**: 7.9
6. Osman, A. I., Fang, B., Zhang, Y., Liu, Y., Yu, J., **Mohamed Farghali**,…. Ihara, I. & Yap, P. S. (2024). Life cycle assessment and techno-economic analysis of sustainable bioenergy production: a review. Environmental Chemistry Letters, 1-40. **IF**: 15.1.
7. Osman, A. I., Ayati, A., Farrokhi, M., Khadempir, S., Rajabzadeh, A. R., **Mohamed Farghali**, ... & Yap, P. S. (2024). Innovations in hydrogen storage materials: Synthesis, applications, and prospects. Journal of Energy Storage, 95, 112376. **IF**: 8.9.
8. Yang, M., Chen, L., Lai, J., Osman, A. I., **Mohamed Farghali**, Rooney, D. W., & Yap, P. S. (2024). Advancing environmental sustainability in construction through innovative low-carbon, high-performance cement-based composites: A review. Materials Today Sustainability, 26, 100712. **IF**: 7.9.
9. Osman, A.I., Nasr, M., Lichtfouse, E. **Mohamed Farghali** (2024). Hydrogen, ammonia and methanol for marine transportation. Environmental Chemistry Letters, ***Editorial***, 1-38. **IF**: 15.1.
10. Kumar, A., Sharma, P., Sharma, G …. **Mohamed Farghali**…. (2024). Simultaneous hydrogen production and photocatalytic pollutant removal: a review. Environmental Chemistry Letters, 1-38. **IF**: 15.1.
11. Osman, A. I., Ayati, A., Krivoshapkin, P., Tanhaei, B., **Mohamed Farghali**, Yap, P. S., Abdelhaleem, A. (2024). Coordination-Driven Innovations in Low-Energy Catalytic Processes: Advancing Sustainability in Chemical Production. Coordination Chemistry Reviews 514: 215900. **IF**: **20.6**.
12. Ahmed I. Osman, Zhonghao Chen, Ahmed M. Elgarahy, **Mohamed Farghali**, Israa M. A. Mohamed, A.K. Priya, Hamada B. Hawash, Pow-Seng Yap. (2024). Membrane Technology for Energy Saving: Principles, Techniques, Applications, Challenges, and Prospects. Advanced Energy and Sustainability Research. **IF**: 5.8.

13. Chen, L., Zhang, Y., Chen, Z., Dong, Y., Jiang, Y., Hua, J., **Mohamed Farghali**... & Yap, P. S. (2024). Biomaterials technology and policies in the building sector: a review. Environmental Chemistry Letters, 22(2), 715-750. **IF**: 15.1.
14. Zhang, Z., Chen, Z., Zhang, J., Liu, Y., Chen, L., Yang, M., Osman, A. I., **Mohamed Farghali**, Liu, E., Hassan, D., Ihara, I., Luh, K., Rooney, D. W., Yap, P. S. (2024). Municipal Solid Waste Management Challenges in Developing Regions: A Comprehensive Review and Future Perspectives for Asia and Africa. Science of The Total Environment. 172794. **IF**: 9.8.
15. Osman, A. I., Nasr, M., Mohamed, A. R., Abdelhaleem, A., Ayati, A., **Mohamed Farghali**, Al-Muhtaseb, A. H., Al-Fatesh, A. S., & Rooney, D. W. (2024). Life cycle assessment of hydrogen production, storage, and utilization toward sustainability. WIREs Energy and Environment, 13(3), e526. IF: 6.1.
16. Chen, L., Chen, Z., Liu, Y., Lichtfouse, E., Jiang, Y., Hua, J., **Mohamed Farghali**... & Yap, P. S. (2024). Benefits and limitations of recycled water systems in the building sector: a review. Environmental Chemistry Letters, 22(2), 785-814. **IF**: 15.1.
17. Osman, A. I., Abd-Elaziem, W., Nasr, M., **Mohamed Farghali**, Rashwan, A. K., Hamada, A., ... & Elsheikh, A. H. (2024). Enhanced hydrogen storage efficiency with sorbents and machine learning: a review. Environmental Chemistry Letters, 1-38. **IF**: 15.1.
18. Osman, A. I., Nasr, M., Eltaweil, A. S., Hosny, M., **Mohamed Farghali**, Al-Fatesh, A. S., ... & Abd El-Monaem, E. M. (2024). Advances in hydrogen storage materials: harnessing innovative technology, from machine learning to computational chemistry, for energy storage solutions. International Journal of Hydrogen Energy. **IF**: 7.2.
19. Osman, A. I., Nasr, M., **Mohamed Farghali**, Rashwan, A. K., Abdelkader, A., Al-Muhtaseb, A. A. H., ... & Rooney, D. W. (2024). Optimizing biodiesel production from waste with computational chemistry, machine learning and policy insights: a review. Environmental Chemistry Letters, 1-67. **IF**: 15.1.
20. Chen, L., Hu, Y., Wang, R., Li, X., Chen, Z., Hua, J., **Mohamed Farghali** ... & Yap, P. S. (2024). Green building practices to integrate renewable energy in the construction sector: a review. Environmental Chemistry Letters, 22(2), 751-784. **IF**: 15.1.
21. Osman, A. I., Nasr, M., **Mohamed Farghali**, Bakr, S. S., Eltaweil, A. S., Rashwan, A. K., ... & Eman, M. (2024). Machine learning for membrane design in energy production, gas separation, and water treatment: a review. Environmental Chemistry Letters, 1-56. **IF**: 15.1.
22. Osman, A. I., **Mohamed Farghali**, Dong, Y., Kong, J., Yousry, M., Rashwan, A. K., ... & Yap, P. S. (2024). Reducing the carbon footprint of buildings using biochar-based bricks and insulating materials: a review. Environmental Chemistry Letters, 22(1), 71-104. **IF**: 15.1.
23. Elsayed, M., Eraky, M., Osman, A. I., Wang, J., **Mohamed Farghali**, Rashwan, A. K., ... & Abomohra, A. (2023). Sustainable valorization of waste glycerol into bioethanol and biodiesel through biocircular approaches: a review. Environmental Chemistry Letters, 1-26. **IF**: 15.1.

24. Osman, A. I., Farghali, M., Dong, Y., Kong, J., Yousry, M., Rashwan, A. K., **Mohamed Farghali**,... & Yap, P. S. (2023). Reducing the carbon footprint of buildings using biochar-based bricks and insulating materials: a review. Environmental Chemistry Letters, 1-34. **IF**: 15.1.
25. Osman, A. I., Zhang, Y., Lai, Z. Y., Rashwan, A. K., **Mohamed Farghali**, Ahmed, A. A., ... & Yap, P. S. (2023). Machine learning and computational chemistry to improve biochar fertilizers: a review. Environmental Chemistry Letters, 1-86. **IF**: 15.1.
26. **Mohamed Farghali**., Osman, A. I., Mohamed, I. M., Chen, Z., Chen, L., Ihara, I., ... & Rooney, D. W. (2023). Strategies to save energy in the context of the energy crisis: a review. Environmental Chemistry Letters, 1-37. **IF**: 15.1.
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Research Summary Areas:

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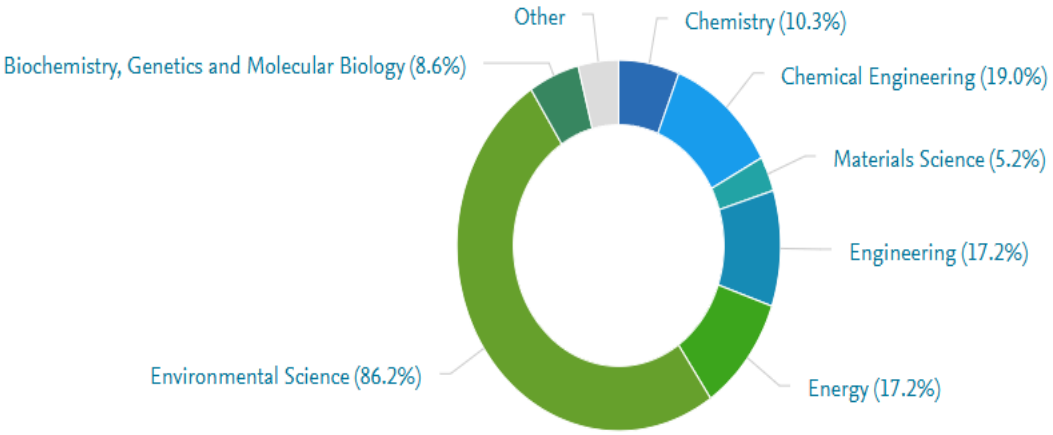

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