Department of Civil Engineering
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Mehedi Hasan
Assistant Professor
Research Area Bioenergy Anaerobic Digestion Biological Wastewater Treatment Environmental Microbiology Environmental Biotechnology Environmental Engineering

Biography

This is Mehedi Hasan, serving as an Assistant Professor in the Department of Civil Engineering, Khulna University of Engineering & Technology with more than Nine (9) years of academic and research experience in the field of environmental engineering. He has been working to develop a new energy-positive technological approach for wastewater treatment and bioenergy generation using a photo anoxic baffled reactor (PABR) and photobiorector (PBR). This technological approach is a sustainable solution for both energy crisis and wastewater problems in most of the developing countries located in subtropical-tropical regions. As part of his research work, he has already developed a novel low-cost PABR and PBR for domestic wastewater treatment. His current research focuses on microalgae-based wastewater treatment systems; optimization of microalgae cultivation and harvesting techniques; and optimization of biofuels/biocrude production from microalgae via hydrothermal liquefaction process.
The primary objectives of his research are to develop simplistic, sustainable, and low-cost techniques for wastewater treatment and bioenergy (as biofuels) production from wastewater which is suitable for most of the developing countries located in subtropical-tropical regions. Currently, he is working on microalgae-based wastewater treatment through a photo anoxic baffled reactor and photobioreactor to generate bioenergy from wastewater which would serve as a double-edged solution to mitigate both wastewater and energy crisis problems in Bangladesh.

Education

M.Sc in Civil Engineering
Khulna University of Engineering & Technology,Bangladesh(2017-2020)
Thesis Title: **Optimization of Nutrients Removal Wastewater using a Photo Anoxic Baffled Reactor and Photobioreactor System**
B.Sc in Civil Engineering
Khulna University of Engineering & Technology,Bangladesh(2012-2017)
Higher Secondary School Certificate
Cantonment Public School and College, Saidpur,Bangladesh(2010-2012)
Secondary School Certificate
Kaligonj S.P. High School,Bangladesh(2005-2010)

Service Records

- **Assistant Professor**
  Department/Section: Department of Civil Engineering
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
- **Lecturer**
  Department/Section: Department of Civil Engineering
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*

Research Interest

Bioenergy

Anaerobic Digestion

Biological Wastewater Treatment

Environmental Microbiology

Environmental Biotechnology

Environmental Engineering

Publication

Books

Journals

7. Kabir,S. B. , Jahan,N. , Hasan*,M. and Khalekuzzaman,M. A. E. a. M. (2022) , " HARVESTING OF MICROALGAL BIOMASS USING MORINGA OLEIFERA AS NATURAL COAGULANT: A COST-EFFECTIVE APPROACH," ***Journal of Engineering Science***, vol13, no.1, pp.51-59

6. Hasan,M. , Khalekuzzaman,M. , Alamgir,M. , Datta,P. and Kabir,S. B. (15 February 2021) , " A new energyâ€'positive technological approach for wastewater treatment and bioenergy generation using a photo anoxic baffled reactor (PABR)," ***International Journal of Environmental Science and Technology***, Springer

5. Hasan,M. , Khalekuzzaman,M. , Hossain,N. and Alamgir,M. (2021) , " Anaerobic digested effluent phycoremediation by microalgae coculture and harvesting by Moringa oleifera as natural coagulant," ***Journal of Cleaner Production***, Elsevier, vol292

4. (2018) , " Performance Comparison of Uninsulated and Insulated Hybrid Anaerobic Baffled Reactor (HABR) Operating at Warm Temperature," ***Water Science and Technology***, IWA Publishing, vol78, no.9, pp.1879-1892

3. (2018) , " Hydrodynamic performance of a hybrid anaerobic bafi¬,ed reactor (HABR): effects of number of chambers, hydraulic retention time, and inï¬,uent temperature," ***Water Science and Technology***, IWA Publishing, vol78, no.4, pp.968-981

2. (2018) , " Effect of Temperature on Hydrodynamic Behaviour of a Modified Anaerobic Baffled Reactor. Journal of Engineering Science," ***Journal of engineering Science***, vol9, no.1, pp.103-110

1. (2019) , " A Simplistic Approach of Algal Biofuels Production from Wastewater Using a Hybrid Anaerobic Baffled Reactor and Photobioreactor (HABR-PBR) System," ***PLOS ONE***, PLOS, vol14

Conference

6. (APRIL 28 2023) , "Bioenergy derived from PABR sludge through hydrothermal liquefaction: Effects of temperature," ***ICCESD 2022*** , AIP Conference Proceedings

5. Kabir,S. B. , Khalekuzzaman,M. , Islam,B. , Hoque,M. S. , Ekhtelat,M. A. and Hasan,M. (March, 2020) , "HYDROTHERMAL LIQUEFACTION OF MICROALGAE CULTIVATED IN A PHOTOBIOREACTOR USING THE WASTEWATER EFFLUENT FROM AN ANAEROBIC REACTOR," ***ICCESD 2020, 5th International Conference on Civil Engineering for Sustainable Development***

4. Ekhtelat,M. A. , Hoque,M. S. , Kabir,S. B. , Noon,M. R. , Hasan,M. and Khalekuzzaman,M. (March, 2020) , "RECOVERY OF MICROALGAL BIOMASS USING MORINGA OLEIFERA AS A LOW-COST BIOCOAGULANT," ***ICCESD 2020, 5th International Conference on Civil Engineering for Sustainable Development***

3. Hoque,M. S. , Ekhtelat,M. A. , Kabir,S. B. , Hasan,M. and Khalekuzzaman,M. (March, 2020) , "REMOVAL OF NUTRIENTS FROM WASTEWATER EFFLUENT BY THE CULTIVATION OF MICROALGAE IN PHOTOBIOREACTOR (PBR)," ***ICCESD 2020, 5th International Conference on Civil Engineering for Sustainable Development***

2. Haque,R. , Khalekuzzaman,M. , Hasan,M. and F.Rabbi,K. &. F. (19-21 December, 2018) , "Effect of Low Temperature On Hydrodynamics of a Hybrid Anaerobic Baffled Reactor (HABR)," ***4th International Conference on Advances in Civil Engineering 2018 (ICACE 2018)*** , pp.24-29

1. Hasan,H. , M.,M. , Khalekuzzaman,K. , Alamgir,M. a. and M.,M. (9-11 Feb, 2018) , "Compartment-wise Variation of Hydrodynamic Characteristics of the Modified Anaerobic Baffled Reactor.," ***4th Intl. Conf. on Civil Engg. for Sustainable Development (ICCESD 2018)*** , pp.147-148