

KAWSAR AHMED



Affiliation

Scientific Officer

Hydrogen Energy Laboratory

BCSIR Chattogram Laboratories,
Chattogram-4220
Bangladesh Council of Scientific and
Industrial Research (BCSIR),
Ministry of Science and Technology,
Bangladesh.

Language

Standardized Test

IELTS Overall 7

L7.5, S7, W6.5, R7

Contact

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<http://www.bcsir.gov.bd>

Personal YouTube Channel:

Research Officials (Link:

<https://www.youtube.com/channel/UCqBajjbJ-p2HLrRo4Qnv51A>).

Personal Information

Father: : Md. Abul Hashem
Khan
Mother : Shahida Begum
Gender : Male
Date of birth : 15 March 1988
Nationality : Bangladeshi

Summary

I am a Scientific Officer in Hydrogen Energy Laboratory, BCSIR Chattogram Laboratories and extremely motivated to build up a dynamic research career in Hydrogen and Fuel Cell systems. I believe in rigorous investigation of the true skills and organized presentation of the output of well-organized research works. I would like to contribute to upgrade the global energy system based on **Green Hydrogen and Fuel Cell** technologies.

Research Skills and Interests

- Hydrogen and Fuel Cell technologies
- Green Hydrogen production
- Materials Design and Polymer Composites

Job Experience

- **Scientific Officer**, Hydrogen Energy Laboratory, BCSIR, October 21, 2018- Present
- **Lab Coordinator**, Hydrogen Energy Laboratory, BCSIR, August 1, 2019-January 31, 2020.
- **Research Chemist**, Hydrogen Energy Laboratory, BCSIR, October 10, 2016- October 20, 2018.

Education

Degree	Institution	Major	Result	Exam Year
M.Sc	Bangladesh University of Engineering and Technology (BUET)	Materials Science	3.08 out of 4	2020
M.Sc	Dhaka College (National University)	Chemistry	First Class (Equivalent to GPA 3.0)	2012
B.Sc	Dhaka College (National University)	Chemistry	First Class (Equivalent to GPA 3.0)	2011

MSc Thesis

“DEVELOPMENT OF BAGASSE PYROLYZED BIOCHAR REINFORCED POLYVINYL ALCOHOL BIODECOMPOSITE FILMS” Supervision by of Prof. Dr. Mahbub Hasan, Materials and Metallurgical Engineering, (MME), Bangladesh University of Engineering and Technology (BUET), Dated on: 28 September 2020.

First Operator of Scientific Instruments

1. Fuel Cell Test Station, Greenlight, Canada, 01-02- 2022 to present
2. On-site Hydrogen Production and Dispensing Unit, MRE, USA, 3-01-2023 to present
3. Biomass Gasification Hydrogen Production Pilot Plant, Dixon Engineering, Malaysia, 10-12-2020 to present
4. Field Emission Scanning Electron Microscope (FESEM), Carl Zeiss Gemini 500, Germany, 3-01-2022 to present
5. Hydrogen Storage Materials Analyzer, Hiden Isochema, UK, 05-06-2019 to present

RECORD OF RESEARCH ACTIVITIES

Book Chapter (One)

1. Book title: Hydrogen Energy Conversion and Management, Chapter 5: “TECHNO- ECONOMIC PROSPECT OF GREEN HYDROGEN PRODUCTION”, ISBN 9780443153297, Elsevier, 2023.

Journal Papers (Seven articles)

1. M. Abdus Salam, Md. Aftab Ali Shaikh, **Kawsar Ahmed**. Green hydrogen based power generation prospect for sustainable development of Bangladesh using PEMFC and hydrogen gas turbine, *Energy Reports*, Volume 9, December 2023, 3406-3416; IF: 4.937, CiteScore: 4.5; <https://doi.org/10.1016/j.egy.2023.02.024>.
2. M. Abdus Salam, Tauhidul Islam, **Kawsar Ahmed**, Md. Sahab Uddin, Md. Shehan Habib, Bawadi Abdullah. Potential Feature of Combined AB 5 -Type Metal Hydride Tank and PEMFC as a Safer System for Hydrogen Fueling in Bangladesh. *Front. Energy Res.*, 9:766270. 26 November 2021 | <https://doi.org/10.3389/fenrg.2021.766270>, **IF: 3.858**, *Scopus and Web of Science*.
3. **Kawsar Ahmed**, Mahbub Hasan, Julfikar Haider. Electrical and Mechanical Properties of Sugarcane Bagasse Pyrolyzed Biochar Reinforced Polyvinyl Alcohol Biocomposite Films. *J. Compos. Sci.* 2021, 5(9), 249; <https://doi.org/10.3390/jcs5090249>. **CiteScore: 3.6**, *Scopus and Web of Science*.
4. M. Abdus Salam, Tareq Hossain, Nasrin Papri, **Kawsar Ahmed**, Md. Shehan Habib, Md. Sahab Uddin, and Willckens, R. Hydrogen Production Performances via Steam Reforming over Hydrotalcite Derived Catalyst: A Sustainable Energy Production Review. *Advances in Chemical Engineering and Science*, 10, 2020, 259-296, 10.4236/aces.2020.104018. *Google-based IF: 1.31*

5. M. Abdus Salam, Md Shehan Habib, Paroma Arefin, **Kawsar Ahmed**, Md Sahab Uddin, Tareq Hossain, Nasrin Papri. Effect of Temperature on the Performance Factors and Durability of Proton Exchange Membrane of Hydrogen Fuel Cell: A Narrative Review, 17(2), 2020, DOI : <http://dx.doi.org/10.13005/msri/170210>.
6. M. Abdus Salam, **Kawsar Ahmed**, Tareq Hossain, Md. Shehan Habib, Md. Sahab Uddin, Nasrin Papri. Prospect of Molecular Sieves Production using Rice Husk in Bangladesh: A Review. *Int j of Chemistry, Mathematics and Physics (IJCMP)*, V-3, Issue-6, Nov-Dec, **2019**, <https://dx.doi.org/10.22161/ijcmp.3.6.2>
7. M. Abdus Salam, **Kawsar Ahmed**, Nazma Akter, Tareq Hossain, Bawadi Abdullah. A review of hydrogen production via biomass gasification and its prospect in Bangladesh. *Int J Hydrogen Energy* 43, **2018**, 14944-14973. <https://doi.org/10.1016/j.ijhydene.2018.06.043>. **IF:7.139**, *Scopus and Web of Science*.

Research & Development (R&D) Projects

As Project Leader

1. Performance study of 4a molecular sieve derived from rice husk for methane separation from hydrocarbon gas mixture- *On going, 2024*
2. Feasibility of power production by utilizing excess hydrogen coming out from PEM fuel cell during operation- *On going, 2024*
3. Preparation and characterization of metal hydride for hydrogen storage, 2021-2023, funded by BCSIR, Bangladesh. *Extended, 2024*
4. Industrial carbon waste to commercial grade carbon black, 2021-2022, funded by Supersilica Bangladesh Ltd., Bangladesh.

As Research Associate

1. Design and fabrication of metal hydride tank for solid state hydrogen storage system, funded by BCSIR, Bangladesh.
2. Metal hydride for hydrogen storage, funded by BCSIR, Bangladesh.
3. Low cost proton exchange membrane for fuel cell application, 2022-2024, funded by BCSIR, Bangladesh.

Completed Research & Development (R&D)

As Project Leader

1. Development of low cost polyethylene biocomposite for packaging application, 2020-2022, funded by BCSIR, Bangladesh.
2. Development of domestic biomass based molecular sieve for petrochemical refining industry, 2018-2021, funded by BCSIR, Bangladesh.
3. Hydrogen Fuel Production from SQNG (sub quality natural gas), 2017-2019, funded by BCSIR, Bangladesh.
4. Synthesis and characterization of low-cost photocatalyst for hydrogen production, 2020-2022, funded by BCSIR, Bangladesh.

AWARDS

1. **“Best Presenter Award”** in “International Conference on Environmental Protection for Sustainable Development”, University of Dhaka, September 4, 2022.

Reviewer contribution

1. A full-length article, International Journal of Hydrogen Energy, April **2022**.
2. Short communication, *Materials Letter*, October **2020**.

Conference Oral Presentation

1. **“Electrical properties of bagasse pyrolyzed biocarbon reinforced polyvinyl alcohol composite”** on *International Conference on Environmental Protection for Sustainable Development (ICEPSD)-2022*, 2-4 October 2022, Ref: 39.02.1506.065.29.001.22/3857 and 1st September 2022.
2. **“Development of biocarbon reinforced polyvinyl alcohol biocomposite films”** ICSTB-2021, DRiCM Auditorium, Dhaka, 12 March **2021**.
3. **“Development of molecular sieve from domestic biomass for petrochemical refinery industry”**, MMDD Laboratory, BCSIR Laboratories, Chattogram, Bangladesh Council of Scientific and Industrial Research, Ref: 39.360.029.03.00.001.2016/1601 and 03/10/**2018**, 3:00 pm.

Training on scientific instruments

From joining my current job, I attended numerous instrumental training on Thermogravimetric Differential Thermal Analysis (TG-DTA); MBR and Hydrogen Storage analyzer, BET

Sorptometer, Wavelength Dispersive X-ray fluorescence (WD XRF), Inductively Coupled Plasma Optical Emission Spectroscopy (ICP OES); Fourier Transform Infra Radiation (FTIR); CNHS Elemental Analyzer; Gas Chromatography (GC) TCD-FID; Hydrogen Fuel Cell Test Station etc.

PROFESSIONAL MEMBERSHIP

- BCSIR Scientist Association, Bangladesh Council of Scientific and Industrial Research, Dhanmondi, Dhaka.
- Bangladesh Chemical Society, Bangladesh.

SOCIAL ACTIVITIES

1. Founding member of BAKS (Better Alternate to Knock Stringency, since 2014), a community to overcome challenges collaboratively regarding individual well-being and prosperity along with fulfilling social responsibility by searching and implementing time demanding better alternatives.
2. Volunteering member of Blood for Cumilla, a regional blood donation community, Cumilla, Bangladesh.
3. Voluntary Blood Donor, Bangladesh Red Crescent Society, Registration no. 19/1578, Chattogram, Bangladesh.

SOFT SKILLS

Turnitin, Mendeley, Endnote, SPSS, MS Office, MS Visio.

COMPUTER LITERACY

1. “Basic Graphic Design Course”, 30 hours, Certificate No. b3b420f, 22-08-2021.
<https://pentanikit.com/verify-certificate/>
2. “Diploma in Computer Science and Programming” (01-7-2012 to 31-12-2012)

COMPUTER LITERACY

1. Dr Mahbub Hasan

Professor of Materials and Metallurgical Engineering (MME)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
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2. Dr Mohammad Mostafa

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