

# MIRZA NUSRAT SWEETY

Scientific Officer

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## EDUCATION

<b>Master of Science</b>	Department of Applied Chemistry & Chemical Engineering, NSTU, Bangladesh CGPA 3.87 (on a scale of 4.00)	2016
<b>Bachelor of Science (Honor's)</b>	Department of Applied Chemistry & Chemical Engineering, NSTU, Bangladesh CGPA 3.83 (on a scale of 4.00)	2018

## RESEARCH INTEREST

Biodegradable Polymer Composite synthesis and characterization, Cellulose- clay nanocomposite, nano-particle synthesis and their application.

## PROFESSIONAL EXPERIENCES

**May 2022 – present**      **Scientific Officer** | Bangladesh Council of Scientific and Industrial Research (BCSIR)

## RESEARCH GRANTS

**Principal Investigator:** Development of Cellulose Fiber based Biodegradable Polymer Composite (2025-2027). BDT 4,50,000.

**Principal Investigator:** Design and Fabrication of Metal Hydride Hydrogen Storage Tank (2023-2025). BDT 500,000.

## PUBLISHED PAPERS

**M. N. Sweety**, S. Islam, 2025. A reitveld refinement in WPPF analysis for crystallographic behavior study of nanocrystal anatase TiO<sub>2</sub> synthesized by ultrasonic-assisted sol-gel method and its photocatalytic activity. *Journal of Crystal Growth*, 10(1).

<https://doi.org/10.1016/j.jcrysgr.2025.128424>

**M. N. Sweety**, M. A. Salam, 2024. Proton conductivity performance and its correlation with physio-chemical properties of proton exchange membrane (PEM). *Chinese Journal of Chemical Engineering* 74.

<https://doi.org/10.1016/j.cjche.2024.06.011>

M. A. Salam, M. A. A. Shaikh, K. Ahmed, **M. N. Sweety**, P. Saha 2024. Strategic integration of national grid or solar photovoltaic power with the on-site hydrogen vehicle refueling station at the hydrogen energy laboratory, BCSIR, Bangladesh. *International Journal of Hydrogen Energy* 86, pp.153-165.

<https://doi.org/10.1016/j.ijhydene.2024.08.343>

K. Ahmed, M. A. Salam, M. A. A. Shaikh, D. K. Murugaiah, S. Shahgaldi, **M. N. Sweety**, 2024. A review on most recent development of electrode structures for proton exchange membrane fuel cell application with upcoming prospects. *ACS Applied Energy Materials*, 7(20), p.9052-83.

<https://doi.org/10.1021/acs.aem.4c01528>

## CONFERENCE PROCEEDINGS

**Mirza Nusrat Sweety**, Md. Abdus Salam, Pabitra Chandra Barman, Synthesis and Characterization of PVDF/GO composite. *BCSIR Congress 2023*, (Poster presentation)

## SKILLS AND EXPERTISE

<b>Instrumental Skills</b>	FT-IR, AAS, CHNS/O Elemental Analyzer
<b>Cross-functional</b>	Strong understanding of good laboratory practice (GLP), goal-setting skills, Proposal writing and report presentation skills
<b>Computer skills</b>	Windows XP operating system, Origin software, Chem draw, Hiscore plus, Mini tab software
<b>Linguistic</b>	Bengali (native), English (fluent)

## TRAINING AND WORKSHOPS

2023	Training on 'Operating and maintenance of Ion Exchange Chromatography'	INARS, BCSIR, Dhaka
2023	Training on 'Operating and maintenance of UV-Vis Spectroscopy'	INARS, BCSIR, Dhaka
2024	Training on 'Operating and maintenance of X-ray Diffractometer (XRD)'	IGCRT, BCSIR, Dhaka
2025	Training on 'Operation and maintenance of Atomic Absorption Spectroscopy (AAS)'	INARS, BCSIR, Dhaka