

## Mohammad Amirul Hoque

Senior Scientific Officer

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### EDUCATION

<b>Master of Science</b>	Department of Applied Chemistry & Chemical Engineering, University of Dhaka, Bangladesh.	2001
<b>Bachelor of Science (Honor's)</b>	Department of Applied Chemistry & Chemical Engineering, University of Dhaka, Bangladesh.	2000

### RESEARCH INTEREST

Graphene based materials, Biodegradable polymer, Polymer Composite, Reactor design, and Process upgradation and beneficiation.

### PROFESSIONAL EXPERIENCES

<b>Position</b>	<b>Senior Scientific Officer, BCSIR Dhaka Laboratories,</b> Bangladesh Council of Scientific and Industrial Research (BCSIR)
<b>Duration</b>	<b>24 July 2017 – present</b>
<b>Position</b>	<b>Scientific Officer, BCSIR Dhaka Laboratories,</b> Bangladesh Council of Scientific and Industrial Research (BCSIR)
<b>Duration</b>	<b>27 July 2011 – 23 July 2017</b>
<b>Position</b>	<b>Research Chemist, BCSIR Dhaka Laboratories,</b> Bangladesh Council of Scientific and Industrial Research (BCSIR)
<b>Duration</b>	<b>02 July 2011 – 26 July 2011</b>

### RESEARCH GRANTS

- 1. Principal Investigator:** Microwave exfoliation of Graphene and its application for the removal of textile dyes and heavy metals from water (2024-2025). BDT 3,50,000.
- 2. Principal Investigator:** Microwave exfoliation of Graphene and its application for the removal of textile dyes and heavy metals from water (2023-2024). BDT 2,50,000.
- 3. Principal Investigator:** Chemical and Electrochemical Synthesis of Graphene Oxide Nano-materials and Its Applications (2021-2022). BDT 2,50,000.
- 4. Principal Investigator:** Production of Rubber Curing Agents to be used as Additives for Rubber & Like Industries. (2011-2012). BDT 4,00,000.
- 5. Principal Investigator:** Production of Rubber Curing Agents to be used as Additives for Rubber & Like Industries. (2011-2012). BDT 4,00,000.

### PUBLISHED PAPERS

**1.** Kaniz Fatema, Taslima Akter, Shabiba Parvin Shandhi, Md Khabir Uddin Sarkar, Mohammad Amirul Hoque, Mohammad Shahriar Bashar, Shahin Sultana, Physico-mechanical evaluation of benzoyl peroxide-treated water hyacinth reinforced polyvinyl alcohol composites and DFT studies of the reaction of the monomer of cellulose, Smart Materials in Manufacturing, (2026), 4, 100123.

**DOI:** 10.1016/j.smmf.2025.100123

**2.** Md. Masum Billah, Shabiba Parvin Shandhi, Mustafizur Rahman Naim, Monira Binte Mesbah, Shamima Akther Eti, Md. Kamruzzaman, Mohammad Amirul Hoque, Effect of surface tension modification in lead ion adsorption from water using different microwave exfoliated graphene from

graphite obtained by varying intercalating agent composition, *Surfaces and Interfaces*, (2025), 74 107655.

**DOI:** 10.1016/j.surfin.2025.107655.

3. Mohammad Amirul Hoque, A.F.M. Mustafizur Rahman, Mohammad Mahbubur Rahman, Mohammad Nazrul Islam Bhuiyan, Shirin Akter Jahan, Md. Aftab Ali Shaikh, Mohammad Nurnabi, Effect of successive recycling and reuse of acid liquor for the synthesis of graphene oxides with higher oxygen-to-carbon ratios, *Heliyon*, (2024), 10, e27639.

**DOI:** 10.1016/j.heliyon.2025.e43237.

4. Mohammad Amirul Hoque, Shahin Sultana, Md. Khabir Uddin Sarker, Zahidul Islam, Recycling waste polypropylene to produce new composite materials with jute reinforcements, *Advances in Materials Science*, (2023), 23, 3 (77).

**DOI:** 10.2478/adms-2023-0014.

5. Mohammad Nazrul Islam Bhuiyan, Kazi Asma Ahmed Shamima, Meher Nahid, Sadia Afrin, Mohammad Amirul Hoque, Mohammad Majedul Haque, Mohammad Khabir Uddin Sarker, Mohammad Abdus Satter Miah, Mohammad Aftab Ali Shaikh, Decolorizing *Stevia rebaudiana* (Bert.) Leaf Extracts with Activated Charcoal and Qualitative Analysis of Stevioside Using Chromatographic Methods, *Journal of Chromatography and Separation Techniques*, (2023), 14, 3, 1000513.

**DOI:** 10.35248/2157-7064.23.14.513.

6. Md. Rashed Hasan, Mohammad Majedul Haque, Md. Amirul Hoque, Shahin Sultana, Mohammad Mahbubur Rahman, Md. Aftab Ali Shaikh, Md. Khabir Uddin Sarker, Antioxidant activity study and GC-MS profiling of *Camellia sinensis* Linn, *Heliyon*, (2024), 10, e23514.

**DOI:** 10.1016/j.heliyon.2023.e23514.

7. Md. Khorshed Alam, Mohammad Amirul Hoque, Sabbir Hossain Naeem, Md. Asaduzzaman, Md. Al-Amin, Study the effect of variation in voltage and electrolytic solution medium in the electrochemical exfoliation of graphite to graphene oxide, *Bangladesh Journal of Physics* (2022), 29, 2, 1 – 12.

**DOI:** 10.3329/bjphy.v29i2.78689.

8. Sadia Afrin, Jannatul Sumaiya Promee, Meher Nahid, Mohammed A. Satter, Mohammad Amirul Hoque, Ashish Kumar Sarker, Mohammad Nazrul Islam Bhuiyan, Influence of thermal and osmotic pressure on the growth and viability of *Candida shehatae* var *shehatae*, *Journal of Yeast and Fungal Research*, (2021), 12(2), 20-27.

**DOI:** 10.5897/JYFR2020.0201.

9. Sadia Afrin, Mohammad Amirul Hoque, Ashish Kumar Sarker, Mohammed A. Satter, Mohammad Nazrul Islam Bhuiyan, Characterization and profiling of bacteriocin-like substances produced by lactic acid bacteria from cheese samples, *Access Microbiology*, (2021), 3, 000234.

**DOI:** 10.1099/acmi0.000234.

10. Sadia Afrin, Kazi Asma Ahmed Shamima, Md. Amirul Hoque, Ashish Kumar Sarker, Md. Abdus Satter Miah, Mohammad Nazrul Islam Bhuiyan, Determination of in-vitro antimicrobial activity of *stevia rebaudiana* (bertoni) leaf extracts against antibiotic resistant microorganisms, *Asian Jr. of Microbiol. Biotech. Env. Sc.*, (2021), 23(1) 31-41.

**DOI:** 10.

11. Kazi Asma Ahmed Shamima, Md. Amirul Hoque, Mohammad Nazrul Islam Bhuiyan, Isolation of sativoside and related compounds from two types of *Stevia rebaudiana* (bertoni) species from Bangladesh, *International journal of Chemistry, Mathematics and Physics (IJCMP)*, (2019), 3, 5, 95-99.

**DOI:** 10.22161/ijcmp.3.5.1.

12. M Saiful Islam, Swapan K Ray, M Amirul Hoque, Shahin Sultana and Husna Parvin Nur, Effect of polymer processing and environmental factors on molecular weight and thermal properties of polystyrene, *International Journal of Contemporary Applied Researches*, (2018), 5(2).

**DOI:** 10.

**13.** Farzana Khan Rony, Swapan Kumer Ray, Md. Amirul Hoque, Asaduzzaman, Shahin Sultana, Husna Parvin Nur, S.T.A. Islam, Zinc stearate from galvanizing waste materials and its use as thermal stabilizer in PVC industries, *Bangladesh J. Sci. Ind. Res.* (2016), 51(4), 261-270.

**DOI:** 10.3329/bjsir.v51i4.30443.

**14.** Suvanker Saha, Partha Saha, Dipti Saha, Husna Parvin Nur, Swapan Kumer Ray, M. Amirul Hoque, Study on synthesis of polyacrylamide grafted raw jute, its characterization and performance on textile reactive dye effluents, *DUJASC*, (2014), 2(2), 139-143.

**DOI:** 10.

**15.** Swapan Kumer Ray, Partha Saha, Husna Parvin Nur, Dipti Saha, M. Amirul Hoque, Suvanker Saha, Study on the preparation of polymer-grafted coir fibre based adsorbent and its application to remove a reactive dye from aqueous solution, *Bangladesh Journal of Scientific and Industrial Research* (2014), 48(4), 271–280.

**DOI:** 10.3329/bjsir.v48i4.18277.

**16.** M. Amirul Hoque, A Nakayama, Husna Parvin Nur, Swapan Kumer Ray, Mohammad Mahbubur Rahman, Khabir Uddin Sarkar, Synthesis and characterization of copoly (L-lactic acid-caprolactone) and its stereo-effect with poly D-lactic acid and biodegradability, *Bangladesh Journal of Scientific and Industrial Research* (2012), 47 (2), 203-210.

**DOI:** 10.3329/bjsir.v47i2.11453.

**17.** Mohammad Nazrul Islam Bhuiyan, Temma Mozmader, M. Amirul Hoque, S. Akter, M.R. Islam, Study of Mutagenic Effect of *Coccinea cordifolia* (Linn.) Cogn. Leaf Extract on *Neurospora crassa* Fungus. *Bangladesh Journal of Scientific and Industrial Research* (2009), 44(2), 215–220.

**DOI:** 10.3329/bjsir.v44i2.3675.

**18.** Mohammad Nazrul Islam Bhuiyan, Temma Mozmader, M. Amirul Hoque, S. Akter, J. I. Mahmud, Isolation, Characterization of *Neurospora crassa* Mutants Exhibiting Growth Inhibition and Mutagenesis of this Fungus by the Leaf Extracts of *Leucas aspera* (Willd) Link. *Bangladesh Journal of Scientific and Industrial Research*, (2008), 43(3), 387–396.

**DOI:** 10.3329/bjsir.v43i3.1155.

## **PROCESS DEVELOPMENT**

1. Production of high molecular weight synthetic rubber adhesive.
2. Production of low molecular weight synthetic rubber adhesive.
3. Production of Rubber Curing Agent incorporating Natural Rubber Latex in Sulfur powder for the use in Natural Rubber based products.
4. Production of Synthetic Rubber based Rubber Curing Agent containing High percentage of Sulfur powder for the use in Synthetic Rubber based products.
5. Production of Food, Drug & Cosmetic Grade Water Soluble Curcumin Pigments.
6. Production of Slightly acid Hypochlorous solution (SAHS) based disinfectant for different purposes.
7. Production of Banana Flavour
8. Production of Sativoside from Stevia Dry Leaf
9. Production of Pineapple Flavour
10. Formulation of Vanilla Flavour
11. Formulation of Lemon Flavour
12. Formulation of Orange Flavour
13. Formulation of Cardamon Flavour
14. Formulation of Milk Flavour

15. Formulation of Eucalyptus Flavour
16. Formulation of Rose Flavour
17. Formulation of Almond Flavour
18. Formulation of Coconut Flavour

### **PATENT ACCEPTED**

1. Production of water soluble curcumin from Turmeric.
2. Process for the Easy and Cost-Effective Production of Graphene oxide from Graphite using Chemical Oxidation Method.
3. A Process for the Production of Non-ionic Surfactant PEG4-Palmitate with Antimicrobial Property for Different Industrial Applications

### **TRAINING PERCIPITATED**

1. Training on “Research on biomass technology” on 24 October, 2009 to 12 September, 2010 organized by JICA in Osaka Japan.
2. Training on “Uncertainty of Measurement” on 01-03 June, 2016 organized by UKAS in Ascot UK.
3. Training on “Assessor ISO L7025:2005 Training Course” on 06-08 June, 2016 organized by UKAS in Ascot UK.
4. Training on “UPLC-MS/Ms System” on 23-27 August, 2017 organized by Agilent Technology in Wallenborn, Germany.
5. Training on “Instrumentation Program” on 5-12 January 2018 organized by Horiba India Pvt. Ltd in New Delhi, India.

### **CONFERENCE/SEMINAR/WORKSHOP**

1. Workshop attended in “6<sup>th</sup> Asia Biomass Workshop” at Hiroshima, Japan on 18-20 November, 2009.
2. Symposium attended in “41<sup>st</sup> Kansai Biopolymer Symposium” at Kyoto, Japan on 05 March, 2010.
3. Conference attended in “59<sup>th</sup> SPSJ (Society of Polymer Science Japan) Annual Conference 2010” at Yokohama, Japan on 26-28 May, 2010.
4. Poster presentation in “56 Annual Polymer Research Conference” at Kobe, Japan on 16 July, 2010.
5. Poster presentation in “34<sup>th</sup> Annual Conference of Bangladesh Chemical Society in 2011” at Dhaka Bangladesh.
6. Oral presentation on “International Conference of Science and Technology for Celebrating the Birth Century of Bangabandhu (ICSTB-2021)” in BCSIR on 11-13 March, 2021.
7. Oral presentation on “International Conference on Environmental Protection for Sustainable Development (ICEPSD-2022)” in CIRDAP Dhaka, on 2-4 September, 2022.
8. Oral presentation on “BCSIR Congress-2022” in BCSIR on 1-3 December, 2022.

### **SKILLS AND EXPERTISE**

<b>CONSULTANCY</b>	Upgradation of jute content in carpets materials of Divine Carpet and Flooring Limited, 187, Raj Complex, Dhaka-1205. Tk. 20.00 Lakh.
<b>REACTOR DESIGN</b>	Design of a reactor for chemical factory using DesignSpark software for auto-control CNC machinery.
<b>PROCESS MODERNIZATION</b>	Modernization of chemical industrial process by upgradation of the process for increase beneficiation/quality improvement/BMRE.
<b>PRODUCTION BUSINESS</b>	Factor involves in production business (Investment, chemicals knowledge, marketing, return on investment ratio, risk on investment, low risk sectors, and how to overcome those problems).