Curriculum Vitae

Personal information:

Name	**: Md. Abdul Mannan**
Date of Birth	: January 6, 1975
Place of Birth	: Naogaon, Bangladesh
Nationality	: Bangladeshi
Degree	: PhD in the field of advanced carbon based materials, Saga University, Japan
Mailing address	: Department of Chemistry, University of Rajshahi, Bangladesh
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Marital status	: Married (Father of Two daughters and one son)
Current Job status	: Professor of Chemistry, University of Rajshahi, Bangladesh

Permanent Address: Village: Chalkrajapur, Post: Gotgari, Thana: Manda-6510, District: Naogaon, Bangladesh

Education:

1. Ph.D. in the field of Energy and Materials Science (September, 2010) from Saga University, Japan (obtained)
2. M. Eng. in the field of Chemistry and Applied Chemistry (September, 2007) from Saga University, Japan (Grade A)
3. M.Sc. in the field of Organic Chemistry (1998) from Rajshahi University, Bangladesh (First class, in 3rd position in the merit list)
4. B.Sc. (Honors) in the field of Chemistry (1996) from Rajshahi University, Bangladesh (First class, in 6th position in the merit list)

Job History:

1. Professor, Department of Chemistry, Rajshahi University (28.03.2021 to date)
1. Associate Professor, Department of Chemistry, Rajshahi University (29.03.2016 – 27.03.2021)
2. Assistant Professor, Department of Chemistry, Rajshahi University (28.09.2011– 28.03.2016)
3. Lecturer, Department of Chemistry, Rajshahi University (28.09.2004–27.09.2011)
4. Chemist, Dhaka Community Hospital, Dhaka, Bangladesh (2000–2004)

Teaching Experience:

1. 2004 to Till date**:** Taught B.Sc. (Hons) and M.Sc in the different courses of Chemistry.

Research Interest:

1. Functionalization of h-BN with metal/non-metal nano-particles by Solvo/hydrothermal method multifunctional characterizations with different sophisticated instrumental techniques and its biomedical applications.
2. Synthesis of Fe NPs by chemical and green synthesis methods and its characterization.
3. Synthesis of silicon NPs from biomass by high thermal treatment and its characterization.
4. Synthesis of graphene oxide (GO) and reduced grapheme oxide (r-GO) by Hummers method and functionalization with different light molecules and its application to different fields such as biomedical and optoelectronic devices.
5. Isolation of bioactive molecules from natural plant and its characterization by spectroscopic method.

Research Experience:

1. 2010-till to date:

(i) Synthesis of Ag, Fe, Si functionalized h-BN NPs and its characterization with novel and sophisticated instrumental methods such as XRD, XPS, Raman, NEXAFS, using synchrotron radiation. In addition, FE-SEM, TEM, EDX etc. also used simultaneously.

(ii) Synthesis of GO and functionalization with light molecule by simple hydrothermal treatment.

(iii) Isolation of bioactive molecules from medicinal plants.

(iv) Characterization and phytochemical screening of antioxidant assay by different methods such as ^{1}H NMR, ^{13}C NMR, GC-Mass, UV-vis. and FT-IR spectroscopy.

(v) Speciation of hazardous metals from environmental samples and their possible remedy.

(vi) Synthesis, characterization and biological activity investigation of mixed ligand coordinated Ni(II), Cu(II), Zn(II), Cd(II), and Co(II) etc. complexes by spectroscopic methods.

2. Post-Doctoral research: January to March, 2017:

Research under the Department of Applied Chemistry and Biochemistry, Faculty of Science and Technology, Kumamoto University, Japan, was finished three months after the PhD. The production and functionalization of graphene oxide and advanced carbon materials for glucose adsorption, oxygen, and CO_2 reduction applications were the main areas of research.

3. 2007 to 2010:

The PhD thesis, "Synthesis and Structural Analysis of B–C–N Hybrid Films and Related Low-Dimensional Materials," was completed at Saga University in Japan in the division of energy and material science's Department of Chemistry and Applied Chemistry. I have been actively involved in the development of novel synthesis techniques for BCN nanomaterials through the use of microwave

and radiofrequency plasma accelerated chemical vapor deposition. Using the high vacuum electron bombardment approach, I have also been successful in creating a one-dimensional silicon polymer thin film. To prepare and characterize the material in-situ, the UHV vacuum chamber (~1.7×10^{-7} Pa) at KEK-PF's BL-27A was utilized. The Photon Factory of KEK in Tsukuba, Japan, used synchrotron radiation as an excitation source to study the structural properties. As an excitation source, 2.2 KeV was used for XPS and 70-1900 eV photon energy was used for NEXAFS at beam lines 27A and 11A of the KEK-PF, respectively. By measuring the sample current, the NEXAFS spectra were obtained using 300 l/mm laminar gratings in total electron yield mode.

4. 2005 to 2007:

I have finished a research project called "Preparation and Characterization of B–C–N Thin Films by Radio Frequency Plasma Enhanced Chemical Vapor Deposition" in order to partially fulfill the requirements for a Master of Engineer Degree in the Chemistry and Applied Chemistry Department at Saga University in Japan. The XPS, FE-SEM, and XRD techniques were used to determine the structural features of the produced materials. CuK_α radiation (30 kV, 20 mA) was used for the XRD, while Al K_α or Mg K_α radiation was used for the XPS.

5. 2000 to 2004:

In cooperation with Harvard Medical School, Harvard School of Public Health, and Dhaka Community Hospital in Bangladesh, I have carried out a research project titled "A case control study of skin cancer and arsenic exposure" for epidemiologic studies of arsenic exposures. The study was a case-control analysis of Bangladeshi people exposed to arsenic and bladder cancer. I have expertise using Atomic Absorption Spectroscopy (AAS) to quantify arsenic in soil, plants, and other materials for use in epidemiologic research, as well as in contaminated ground water, toenails, hair, and skins of Bangladeshi individuals exposed to arsenic. Additionally, I have expertise using the AAS technique to evaluate harmful trace elements like Pb, Cd, Cr, Zn, Mn, and others in water samples for the management of water quality.

6. 1998 to 2000:

I completed a portion of the research for my M.Sc. in chemistry at Rajshahi University in Bangladesh titled "Evaluation of Sand-Charcoal Filter Bed for Reduction of Arsenic concentration from Arsenic Polluted Water." I have created a straightforward sand-charcoal filter bed to remove arsenic from tainted groundwater and maintain its purity. The UV-vis spectroscopy approach was used for the analysis.

I am proficient in the instrumental skills listed below:

(I) Microwave and Radiofrequency Plasma Enhanced Chemical Vapor Deposition Technique.
(II) Direct sputtering.
(III) X-ray Photoelectron Spectroscopy (XPS).
(IV) Near-edge X-ray Absorption Fine Structure Spectroscopy (NEXAFS).
(V) X-ray diffraction (XRD).

(VI) Field Emission Scanning Electron Microscopy (FE-SEM).
(VII) Transmission Electron Microscopy (TEM)
(VIII) Fourier Transform Infrared Spectroscopy (FT-IR).
(IX) Atomic Absorption Spectrophotometry (AAS) etc.

Total List of Publications:

1. **Md. Abdul Mannan**, Mirza H. K. Rubel, Ashrafun Nahar, Toshar Hossain, Md. Abu Shamim Khan, Md. Rafiqul Islam, Md. Kudrat-E-Zahan: Evaluation of the physico-chemical ground water quality at Rajshahi University campus in Bangladesh, Journal of the Bangladesh Chemical Society 2024, 35(2), xx–xx (Accepted).

2. **Md. Abdul Mannan**, Mirza H. K. Rubel, Md. Abu Shamim Khan, Md Borhan Uddin, Md. Najmus Sakib, Md. Kudrat-E-Zahan: Determination of macro and micro nutrients in some selected herbal plants of Bangladesh by graphite-furnace atomic absorption spectrophotometry, Journal of the Bangladesh Chemical Society 2023-24, 35(1&2), 37–48.

3. **Md. Abdul Mannan**, Mirza Humaun Kabir Rubel, Md. Abdur Rahman, Anwar Ul Hamid, Md Borhan Uddin, Shota Kitamura, Manami Shimoyoshi, Taiga Kodama, Kousuke Sonda, Hiroki Douyama, Yu Nagata, Keigo Masumoto, Tetsuya Kida. Solvothermal synthesis, crystal structure, multifunctioning characterizations and anti-microbial activity assessment of Ag doped h-BN through silver diethyldithiocarbamate. Journal of Alloys and Compounds 1002 (2024) 175139.

4. M.S. Hossain, N.A. Bitu, M.N. Khan, Ali Asraf, Faruk Hossen, **M.A. Mannan**, Kudrat-E-Zahan. 2,3-Dimethoxybenzaldehyde schiff base of sbdtc and its metal complexes of Ni(II), Cu(II), Zn(II) AND Cd(II): synthesis, characterization and biological activity. New Materials, Compounds and Applications, Vol.5, No.3, 2021, pp.182-191.

5. **Md. Abdul Mannan**, Liton Chandra, A.B.M. Nazmul Islam, Md. Saddam Hossain, Md. Kudrat-E-Zahan, Tetsuya Kida. *Averrhoa bilimbi*: A prospective source of bioactive compounds against antimicrobial and cytotoxic activity. Asian Journal of Chemistry. Vol. 32, No. 9 (2020), 2279-2283.

6. Liton Chandra, A.B.M. Nazmul Islam, Nasiruddin, Amina Khatun, Md. Matiar Rahman, Md. Kudrat-E-Zahan, **Md. Abdul Mannan**. Quantitative evaluation of macro and micronutrients in *Averrhoa bilimbi*, *Mimusops elengi* and *Carissa carandas* fruits of Bangladesh. Asian Journal of Chemistry 32(9), (2020): 2279-2283.

7. Susmita Saha, Md. Al-Amin Sarker, **Md. Abdul Mannan**. Effects of dietary calcium level on growth performance and mineral contents in *Labeo bata* (Hamilton, 1822). International Journal of Fisheries and Aquatic Studies. 8(4), (2020):96-102.

8. Raisul Islam, Ekhlass Uddin, Ashrafuzzaman, Nur Amin Bitu, Ali Asraf, Faruk Hossen, M. Haque, **Abdul Mannan**, Kudrat-E-Zahan. Recent Advances in Biological and Catalytic Activities of Schiff base containing Acetylacetone and their Metal Complexes - A Short Overview. Asian J. Research Chem. 13(5): September – October (2020).

9. Hoore Jannat, Md. Nasiruddin, Md. Saidul Islam, Md. Nazrul Islam, **Md. Abdul Mannan**, Md. Kudrat-E-Zahan. Determination of different Physico-chemical Parameters of ground and surface water of Rajshahi and Dinajpur District of Bangladesh. Asian Journal of Research in Chemistry. (2020); 13(3): 163-168.

10. Md Saddam Hossain, **Md Abdul Mannan**, Md Kudrat-E-Zahan. Recent advances on microbial

activity of metal complexes: A short review. International Journal of Chemistry Studies, 4(1), (2020): 17-24.

11. **Md. Abdul Mannan**, Yudai Hirano, Armando T. Quitain, M. Koinuma, Tetsuya Kida. Nitrogen, Sulfur Co-doped Reduced Graphene Oxide: Synthesis and Characterization. Micro and Nanosystems. 12(2), (2020) 129-134.

12. Md. Saddam Hossain, Md. Nur Amin Bitu, Md. Mahasin Ali, Md. Faruk Hossen, Md. Ali Asraf, **Md. Abdul Mannan**, Md. Kudrat-E-Zahan. Potential microbial applications of metal complexes containing amino acid derived schiff base ligands: an overview, Asian Journal of Microbiology and Biotechnology, 4(3), 135-148 (2019).

13. **Md. Abdul Manna**n, Nasiruddin, Md. Saddam Hossain, Nurun Nahar Nipa, Amina Khatun, Md. Ruhul Amin, Mukul Kumar Sarkar, Md. Kudrat-E-Zahan. Macro and micro nutrients in *Holy basil* (Tulsi): A possible supplement for natural medicine. International Journal of Chemistry Studies, Volume 3; Issue 4; July 2019; Page No. 43-47.

14. Kismat Ara Elachi, Md. Saddam Hossain, Md. Nur Amin Bitu, A.A.S.M.Zahid, Ranjan K Mohapatra, **Md. Abdul Mannan**, C.M.Zakaria, Md. Kudrat-E-Zahan. Synthesis, Spectral and Thermal Characterization on Bioactive Complexes of Mg(II), Zn(II), Sn(II), VO(II) and Bi(III) Ions Containing Schiff Base Ligand. Journal of Chemical, Biological and Physical Sciences. Sec. A; August 2019 – October 2019, Vol. 9, No. 4; 201-218. DOI:10.24214/jcbps.A.9.4.20118.

15. Md. Al-Amin Sarker, Yutaka Haga, **Md. Abdul Mannan**, Goro Yoshizaki, Shuichi Satoh. The effect of total replacement of fish oil with linseed oil on the growth performance and tissue fatty acid profile of red sea bream *Pagrus major*. (Manuscript submitted for publication).

16. **Md. Abdul Mannan**, Yudai Hirano, Armando T. Quitain, M. Koinuma, Tetsuya Kida. Graphene Oxide to B, N Co-doped Graphene through Tris-dimethylaminoborane Complex by Hydrothermal Implantation. American Journal of Materials Science 2019, 9(1): 22-28. DOI: 10.5923/j.materials.20190901.04.

17. Nasiruddin, Md. Kamruzzaman, Md. Razu Ahmed, Md. Anwaruzzaman, Md. Lawshan Habib, **Md. Abdul Mannan**. Spectrofluorimetric determination of bovine serum albumin using enoxacin-aluminium (III) as a fluorescence probe. American Journal of Biochemistry, 8 (5) (2018): 100-105.

18. Md. Motahar Hossain, Md. Abul Bashar, Md. Nuruzzaman Khan, Pijush Kanti Roy, **Md. Abdul Mannan**, Md. Siddik Ali, Md. Akhter Farooque. Physical and Spectral Characterization of Ni (II), Cu (II), Co (II), and Cd (II) Complexes with Schiff Base of Salicylaldehyde and 2-Aminopyridine Towards Potential Microbial Application. American Journal of Applied Chemistry 6(4), (2018): 147-155.

19. **Md. Abdul Mannan**, Md. Saddam Hossain, Md. Al-Amin Sarker, Md. Motahar Hossain, Liton Chandra, ABM Hamidul Haque and Md. Kudrat-E-Zahan. Bioaccumulation of Toxic Heavy Metals in Fish after Feeding with Synthetic Feed: A Potential Health Risk in Bangladesh. Journal of Nutrition and Food Sciences 2018, 8:5. DOI: 10.4172/2155-9600.1000728

20. M.R. Ahmed, Nasiruddin, M.A. Alim, N. Jaman, M.A. Islam, S.A. Begum, M.M. Rahman, M.F. Ahmed, **Md. Abdul Mannan**. Facile and Rapid Synthesis of Arylidene Derivatives by Microwave Assisted NH_4OAc Catalyzed Under Solvent Free Condition. Organic Chemistry: Current Research. (2018),7:3.DOI: 10.4172/2161-0401.1000194.

21. Md. Saddam Hossain, A.S.M.E. Shaheed, Md. Nuruzzaman Khan, **Md. Abdul Mannan**, M.M.

Haque, C. M. Zakaria, Ranjan K Mohapatra, Md. Kudrat-E-Zahan. Synthesis and Characterization of Cu(II) and Co(II) complexes containing Schiff base ligands towards Potential Biological Application. JCBPS; Section A, (2018), Vol. 8, No. 4; 654-668.

22. Mst. Sadia Afrin Dalia, Farhana Afsan, Md. Saddam Hossain, **Md. Abdul Mannan**, M. M. Haque, and Md. Kudrat-E-Zahan. Spectral and Thermal Characterization of Mn(II), Ni(II) and Zn(II) Complexes Containing Schiff Base Ligands Towards Potential Biological Application. Asian Journal of Chemical Sciences, 4(4): 1-11, 2018; Article no.AJOCS.42355, ISSN: 2456-7795.

23. **Md. Abdul Mannan**, Yudai Hirano, Armando T. Quitain, M. Koinuma, Tetsuya Kida. Boron doped graphene oxide: synthesis and application to glucose responsive reactivity. International Journal of Current research. 10 (11) (2018) 75335-75340.

24. Islam MJ, Amin MR, Ahmed MF, Khatun S, Rahman ML, Siddiqui SA, Rahman MA, Kudrat-E-Zahan M and **Mannan MA**. In-vitro Antimicrobial Activity of Essential Oils and Different Organic Extracts of Lippia alba. Journal of Phytochemistry & Biochemistry. Volume 2 (1) 1000107 (2018).

25. **Md. Abdul Mannan**, Md. Zakir Hossen, Zahidul Islam, A.B.M. Hamidul Haque , Md. Kudrat-EZahan, Shahed Zaman. Assessment of Antioxidant Properties of the Medicinal Plant *Abroma augusta* Linn. (Sterculiaceae) Leave. Bangladesh Journal of Industrial Microbiology and Biotechnology 2017; 1(2): 69-77.

26. Md. Saddam Hossain, **Md. Abdul Mannan**, F. K. Camellia, A. K. B. Zaman, C. M. Zakaria, Md. Kudrat-E-Zahan. Isoniazid Containing Metal Based Drugs as Potential Antimicrobial Agent: A Short Review. Science Journal of Chemistry, 5(5); (2017): 62-70.

27. **Md. Abdul Mannan**, Md. Samsul Alam, Farhana Mustari, Md. Kudrat-E-Zahan, Roushown Ali, ABM. Hamidul Haque, Shahed Zaman, and Debashish Talukder. *In vitro* Antioxidant, Antimicrobial, Insecticidal and Cytotoxic Activities of the Medicinal Plants: *Allamanda cathartica* and *Mimusops elengi*. European Journal of Medicinal Plants, 20(4); (2017): 1-12.

28. **Md. Abdul Mannan**, Zahidul Islam, Md. Jakir Hossen, ABM Hamidul Haque, Md. Kudrat-E-Zahan, Shahed Zaman, Debashish Talukder. Evaluation of Antimicrobial, Antifungal, and Cytotoxic Properties of *Abroma augusta* Linn. Asian Journal of Chemical Sciences, 3(2), (2017): 1-7.

29. Suman C. Mohanta, ABM Hamidul Haque, **Md. Abdul Mannan**, Shahed Zaman, Asif Iqbal, Dehashish Talukder. Antibacterial activities of nitrogen and sulfur containing macro cyclic compounds. Journal of Jessore University of Science and Technology, 1 (1); (2017): 59-66.

30. Md. Saddam Hossain, Md. Ashraful Islam, C. M. Zakaria, M.M. Haque, **Md. Abdul Mannan**, Md. Kudrat-E-Zahan. "*Synthesis, Spectral and Thermal Characterization with Antimicrobial Studies on Mn(II), Fe(II), Co(II) and Sn(II) Complexes of Tridentate N,O Coordinating Novel Schiff Base Ligand",* Journal of Chemical, Biological and Physical Sciences Section A, 6(4); (2016): 041-052.

31. **Md. Abdul Mannan**, Md. Saifullahhel Ali Azom, Babul Hasan, Md. Kudrat-E-Zahan, A B M Hamidul Haque. "*New Flavonoid Glycoside from the Medicinal Plant Vitex negundo",* Journal of Chemical, Biological and Physical, Sciences, Section B, 6; (2016): 1115-1119.

32. **Md. Abdul Mannan**, Farhana Mustari, Md. Shamim Hossain, Md. Khalid Hassan, Md. Kudrat-

E-Zahan, ABM. Hamidul Haque, Shahed Zaman. "*Determination of Essential and Harmful Heavy Metals in Some Typical Medicinal Plants Grown in Bangladesh*", Journal of Chemical, Biological and Physical Sciences, Section A, 6; (2016): 291-920.

33. **M.A. Mannan**, Y. Baba, T. Kida, M. Nagano, H. Noguchi. "*Synthesis of Hexagonal Boron Carbonitride without Nitrogen Void Defects*", Materials Sciences and Applications. 6; (2015): 353-359.

34. Rakesh Chandra Ray, Md. Kudrat-E-Zahan, M.M. Haque, Md. Abdul Alim, Md. Moffaserul Alam, Md. Sher Ali, **M.A. Mannan**, and Md. Akhter Farooque. "*Synthesis and Characterization with Antimicrobial activity of Cu(II), Ni(II) and Zn(II) metal complexes of Schiff base derived from o-aminophenol/ethylenediamine and Cinnamaldehyde*", Asian Journal of Research in Chemistry, 8(9); (2015): 545-547.

35. MA. Bashar, **MA. Mannan**, MF. Hossen, MS. Islam, MKE. Zahan, "*The synthesis, characterization and biological activity investigation of mixed ligand Coordinated Ni(II)Complexes*", Asian Journal of Research in Chemistry. 8(1); (2015): 55-58.

36. Mahbubur Rahman, Shahed Zaman, A B M Hamidul Haque, **Md. Abdul Mannan,** Debashish Takulder.
"*Antimicrobial and insecticidal activities of Corchorus capsularis seed extract*". Asian Journal of Research in Chemistry and Pharmaceutical Sciences. 3(3); (2015): 111-117.

37. Mamunur Rashid, Anwar Hossain, Shahed Zaman, A.B.M. Hamidul Haque, **Md. Abdul Mannan**, Debasish Talukder. "*Characterization and antioxidant assay of new compound isolated from Acacia nilotica fruit*". Asian Journal of Research in Chemistry and Pharmaceutical Sciences. 3(3); (2015): 103-109.

38. Anwar Hossain, Mamunur Rashid, Shahed Zaman, A.B.M. Hamidul Haque, **Md. Abdul Mannan**, Raqibul Islam, Debasish Talukder. "*Antioxidant, antimicrobial and insecticidal activities of Acacia nilotica fruit of Bangladesh*". University Journal of Zoology, Rajshahi University. 33; (2014): 49-55.

39. A B M Hamidul Haque, **Md. Abdul Mannan**, Shahed Zaman, Abdul Jalil Mia, Asif Iqbal, Debashish Talukder. "*Antibacterial activities of –S-S- bonded NNSS containing macro cyclic compounds*". University Journal of Zoology, Rajshahi University. 33; (2014): 77-83.

40. **M.A. Mannan**, M.A. Mottaleb, "*A low cost bio-sorption method for the removal of arsenic*", Rajshahi University Journal of Science and Engineering. 4; (2013): 1-8.

41. **M.A. Mannan**, Y. Baba, N. Hirao, T. Kida, M. Nagano, H. Noguchi, "*Hexagonal nanocrystalline BCN films grown on Si (100) substrate studied by X-ray absorption spectroscopy*". Materials Sciences and Applications. 4; (2013): 11-19.

42. **M.A. Mannan,** Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, M. Nagano, H. Noguchi,**"***Orientation of One-dimensional Silicon Polymer Films Studied by X-ray Absorption Spectroscopy***"** Journal of Nanomaterials. doi:10.1155/2012/528256: Vol. 2012, (2012).

43. **M.A. Mannan**, Y. Baba, I. Shimoyama, N. Hirao, H. Noguchi, T. Kida, M. Nagano, "*Orientation of B–C–N hybrid films deposited on Ni (111) and polycrystalline Ti substrates explored by spectroscopy*". Thin Solid Films. 519; (2011): 1780–1786.

44. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, A. Narita, M. Nagano, H. Noguchi, "*Self-ordering of silicon polymer thin film grown on indium tin oxide surface*

investigated by X-ray absorption spectroscopy" Journal of Electron Sepctroscopy and Related Phenomena. 181; (2010): 242–248.

45. **M.A. Mannan**, H. Noguchi, T. Kida, , M. Nagano, N. Hirao, Y. Baba, *"Growth and characterization of stoichiometric BCN films on highly oriented pyrolytic graphite by radiofrequency plasma enhanced chemical vapor deposition"*. Thin Solid Films. 518(15); (2010): 4163–4169.

46. **M.A. Mannan**, M. Nagano, T. Kida, I. Shimoyama, N. Hirao, Y. Baba, "*Atomic arrangement, composition and orientation of hexagonal BCN films synthesized by radiofrequency plasma enhanced CVD*". Journal of the Ceramic Society of Japan. 117(4); (2009): 503–507.

47. **M.A. Mannan**, M. Nagano, T. Kida, N. Hirao, Y. Baba, "*Characterization of BCN films synthesized by radiofrequency plasma enhanced chemical vapor deposition*". Journal of Physics and Chemistry of Solids. 70; (2009): 20–25.

48. T. Kida, K. Shigezumi, **M.A. Mannan**, M. Akiyama, Y. Baba, M. Nagano, *"Synthesis of boron carbonitride (BCN) films by plasma-enhanced chemical vapor deposition using trimethylamine borane as a molecular precursor"*. Vacuum. 83; (2009): 1143–1146.

49. **M.A. Mannan**, H. Noguchi, T. Kida, M. Nagano, N. Hirao, Y. Baba, *"Chemical bonding states and local structures of the oriented hexagonal BCN films synthesized by microwave plasma CVD"*. Materials Science in Semiconductor Processing. 11; (2008): 100–105.

50. **M.A. Mannan**, M. Nagano, N. Hirao, Y. Baba, "*Hexagonal BCN Films Prepared by RF Plasma Enhanced CVD"*. Chemistry Letters. 37; (2008): 96–97.

51. **M.A. Mannan**, M. Nagano, K. Shigezumi, T. Kida, N. Hirao, Y. Baba, *"Characterization of Boron Carbonitride (BCN) Thin Films Deposited by Radiofrequency and Microwave Plasma Enhanced Chemical Vapor Deposition*", American Journal of Applied Sciences. 5; (2007): 736–741.

52. **M.A. Mannan**, M. Nagano, N. Hirao, Y. Baba, "*Characterization of hexagonal boron carbonitride (h-BCN) films prepared by RF plasma enhanced CVD"*. Proceedings of the 24th International Japan-Korea Seminar on Ceramics. Kakegawa, Shizuoka, Japan. pp. 289–292 (2007).

53. **M.A. Mannan**, T. Kida, M. Nagano, N. Hirao, Y. Baba, "*Plasma Enhanced Chemical Vapor Deposition of B-C-N Films"***.** Advanced Ceramic Processing International. 3; (2006): 51–54.

54. M.A. Mottaleb, M.S. Uddin, **M.A. Mannan**, M.N. Islam, M. Jesmin, "*Determination and mitigation of Arsenic in Drinking Water of Barind Region in Bangladesh*". Oriental Journal of Chemistry. 15; (1999): 479–484.

55. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, M. Nagano, H. Noguchi, "*Orientation of one-dimensional silicon polymer films studied by polarization-dependence NEXAFS*", Photon Factory Activity Report 2011# 29, Part B, p. 159, (2012).

56. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, A. Narita, M. Nagano, H. Noguchi, "*Configuration of self-assembled silicon polymer films studied by polarization-dependent NEXAFS*", Photon Factory Activity Report 2010 # 28, Part B, p. 70, (2011).

57. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, M. Nagano, H. Noguchi, "*Self-ordering of polysilanes on metal and semiconductor surfaces investigated by X-ray absorption*

spectroscopy", Photon Factory Activity Report 2009 # 27, Part B, p. 75, (2010).

58. M. Nagano, **M.A. Mannan**, H. Noguchi, I. Shimoyama, N. Hirao, Y. Baba, "*Configuration, composition and orientation of hexagonal BCN films synthesized by radiofrequency plasma enhanced CVD*", Photon Factory Activity Report 2008 # 26, Part B, p. 36, (2009).

59. M. Nagano, M**.A. Mannan**, R. Oshima, N. Hirao, Y. Baba, *"BCN films prepared by RF plasma enhanced chemical vapor deposition"*. Photon Factory Activity Report 2007, Part B, p. 25, (2008).

60. M. Nagano, T. Kida, M**.A. Mannan**, K. Shigezumi, M. Akiyama, "*Preparation of B-C-N hybrid films by plasma CVD*". Report of the 10th Special Project of Joint Graduate School Method, p. 36, (2006).

61. **Mannan MA**, Baba Y., Sekiguchi T., Shimoyama I., Hirao N., Narita A., Nagano M., Noguchi H., "*Self-ordering of silicon polymer studied by X-ray absorption spectroscopy*". The 90th Annual Meeting of the Chemical Society of Japan, March 26–29, Osaka, Japan 2010. Abstract: E1-44.

62. **M.A. Mannan**, "*Synthesis and structural analysis of B–C–N hybrid films and related low-dimensional materials*" JAEA Special Seminar, Feb. 24, 2010. (Ref. http://wwwapr.kansai.jaea.go.jp/srrc/02/).

63. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, A. Narita, M. Nagano, H. Noguchi, "*Molecular orientation of silicon polymer thin film evaporated on indium tin oxide surface*" The 23rd Conference of Japan Society for Synchrotron Radiation, Januray 6–9, 2010, Himeji, Japan. Abstract p. 66.

64. **M.A. Mannan**, Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, A. Narita, M. Nagano, H. Noguchi. *"Effect of substrates on the molecular-orientation of hexagonal B–C–N hybrid films"*. European Conference on Surface Science (Ecoss26), August 30–September 4, 2009, Parma, Italy. Abstract p. 11–12.

65. **MA. Mannan**, T. Kida, M. Nagano, N. Hirao, Y. Baba, *"Atomic arrangement, composition and orientation of hexagonal BCN films synthesized by radiofrequency plasma enhanced CVD"*. The 25th International Korea-Japan Seminar on Ceramics. November 19–21, 2008, Kangnung, Korea. Abstract p. 164.

66. **MA. Mannan**, M. Nagano, T. Kida, N. Hirao, Y. Baba, *"XPS and NEXAFS studies on oriented hexagonal BCN films"*. The 21st Kitakyushu Fall Meeting of The Ceramic Society of Japan. September 17–19, 2008, Abstract p. 124.

67. **MA. Mannan**, M. Nagano, N. Hirao, Y. Baba, *"Synthesis and characterization of oriented hexagonal BCN films by RF plasma enhanced chemical vapor deposition"*. The 1st Saga University (Japan) and Daegu University (Korea) Joint Seminar. January 23, 2008, Abstract p.L-5.

68. **MA. Mannan**, M. Nagano, N. Hirao, Y. Baba, *"Chemical bonding states and local structures of BCN films prepared by RF plasma enhanced CVD"*. Kitakyushu Fall Meeting of Ceramic Society of Japan. December 7, 2007, Abstract p.40-43.

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70. M.Nagano, T.Kida, **M.A. Mannan**, K. Shigezumi, M. Akiyama. "Preparation of B-C-N hybrid films by plasma enhanced chemical vapor deposition". Annual Meeting of Ceramic Society of Japan, 2006 (in Japanese language), Abstract, p. 265.

71. **MA. Mannan**, T. Kida, M. Nagano, *"Synthesis of Boron Carbonitride Films by RF Plasma CVD"*. The 4th Japan (Saga University) and Korea (Pusan National University) Joint Meeting on Chemistry. November 11, 2006, Saga University, Japan, p. 41.

72. **MA. Mannan**, T. Kida, M. Nagano, *"Plasma Enhanced Chemical Vapor Deposition of B-C-N Films"*. The 3rd Kyushu-Busan/Kyungnam Joint Symposium on Advanced Ceramics. December 14–15, 2006, Nagasaki University, Japan, p. 9-10.

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75. Y. Baba, T. Sekiguchi, I. Shimoyama, M. Honda, N. Hirao, A. Narita, **M.A. Mannan**. *"Real-time observation of electronic structure and orientation at nanometer scale for silicon polymers"*. 11th International Conference on Electronic Spectroscopy and Structure, October 6 –10, 2009 Nara, Japan. Abstract p. 74.

76. **MA. Mannan**, M. Nagano, N. Hirao, Y. Baba. *"NEXAFS and XPS studies on the hexagonal boron carbonitride films synthesized by radiofrequency plasma CVD"*. The 3rd symposium on synchrotron radiation research in JAEA. February 28-29, 2008 (Spring-8), p. 307-308.

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78. M. Nagano, **M.A. Mannan**, T. Kida, N. Hirao, Y. Baba, *"Preparation and analysis of chemicalbond of BCN films by plasma CVD"***.** The 2nd Symposium on Synchrotron Radiation Research in JAEA, Japan. March 2007 (SPring-8), p. 345–349.

Attended National/International Conferences for Paper Presentation:

1. **Md. Abdul Mannan**, Mirza Humaun Kabir Rube, Md. Kudtat-E-Zahan: Solvothermal synthesis of Ag doped h-BN: Its characterizations and anti-microbial activity assessment, 2nd International Conference on Recent Advances in Chemistry (ICRAC-2024), Department of Chemistry, Jagannath University, Bangladesh, January 31-February 01, **2025**. Abstract Book, IL-C-02, Page No.30 (Invited talk).

2. **Mirza Humaun Kabir Rube***, **Md. Abdul Mannan***, Nafis Niyaz Tamim: Melt Quenching Synthesis, Structural Characterizations to Study the Effect of Lead on the Physical Properties of Borosilicate Glasses, 2nd International Conference on Recent Advances in Chemistry

(ICRAC-2024), Department of Chemistry, Jagannath University, Bangladesh, January 31-February 01, **2025**. Abstract Book, IL-C-03, Page No.31-32.

3. Nasiruddin, Md. Saddam Hossain, **Md. Abdul Mannan**, Md. Kudrat-E-Zahan: Study of some major nutrients and trace elements in medicinal plant tulsi, International Conference on Recent Advances in Chemistry, Jagannath University, Dhaka, February **2020**. Abstract no. PP-F-04.

4. Kismat Ara Elachi, Md. Saddam Hossain, A.A.S.M. Zahid, Md. Nasiruddin, **Md. Abdul Mannan**, Md. Kudrat-E-Zahan: Bioactive complexes of Mg(II), Zn(II), Sn(II), Vo(II) and Bi(III) ions containing Shiff base: spectral and thermal characterization with antimicrobial activity, International Conference on Recent Advances in Chemistry, Jagannath University, Dhaka, February **2020**. Abstract no. OP-B-04.

5. **Md. Abdul Mannan,** Tetsuya Kida,**:** Nitrogen Sulfur Co-doped Reduced Graphene Oxide: Synthesis and Characterization, Bangladesh Chemical Society Conference-**2019**, November 9-10, Rajshahi University, (PN-OP-02) Abstract page no. 55.

6. Liton Chandra, A.B.M. Hamidul Haque, Md. Kudrat-E-Zahan, **Md. Abdul Mannan**: Assessment of Micronutrients, Antioxidant and Cytotoxicity of *Averrhoa bilimbi*. Bangladesh Chemical Society Conference-**2019**, November 9-10, Rajshahi University, (PP-04) Abstract page no. 60.

7. Nur Mohammad, Md. Nur Amin Bitu, Sharif Uddin, Md. Saddam Hossain, Yeamin Reza, **Md. Abdul Mannan**, Md.Kudrat-E- Zahan: Structural properties of Copper(II) complex containing schiff base ligand, 2-salicylidene amino benzoic acid. Bangladesh Chemical Society Conference-**2019**, Rajshahi University, Bangladeah.

8. **Md. Abdul Mannan*****, Md.Kudrat-E- Zahan, Kida Tetsuya. Boron Doped Graphene Oxide: Synthesis and Application to Glucose Responsive Reactivity. Recent Advances in Material Science and Technology (RAMST-2019). Government College of Engineering, Keonjhar, Odisha, India. (**Invited speaker**).

9. Md. Saddam Hossain, **Md. Abdul Mannan**, Mostofa Zahid, Md Nuruzzaman Khan, Md.Nasiruddin, Choudhury Md. Zakaria, Md.Kudrat-E- Zahan. Thermal Properties of Synthesized Schiff Base Metal Complexes: Spectrochemical Correlations. Recent Advances in Material Science and Technology (RAMST-2019). Government College of Engineering, Keonjhar, Odisha, India.

10. **Md. Abdul Mannan**, Md. Saddam Hossain, Md.Kudrat-E- Zahan, Md. Al-Amin Sarker. Bioaccumulation of toxic heavy metals in fish after feeding with synthetic feed: a potential health risk in bangladesh. Conference: Bangladesh Chemical Congress 2018, Dhaka University. October 2018.

11. Md. Anarul Islam, Md.shiraz U Ddaula, **Md. Abdul Mannan**, Md.Kudrat-E-Zahan. Spectroscopic investigation with antimicrobial screening of several transition metal complexes containing diethylenetriamine/triethylenetetramine and isatin derived Schiff base ligand. Conference: International Conference on Chemical Science & Technology, ICCST-Chem 2018. Khulna University of Science and Technology. February 2018.

12. Md. Saddam Hossain, Md.Ashraful Islam, Md. Masuqul Haque, **Md. Abdul Mannan**, Choudhury Md. Zakaria, Md.Kudrat-E- Zahan. Structural Properties and antimicrobial activity studies on some metal complexes containing N, O and S donor novel Schiff base ligand. Conference: Ist Symposium on Chemistry for Global Solidarity. Jagannath University,

Dhaka, Bangladesh. October 2016.

13. **Md. Abdul Mannan,** Y. Baba, T. Sekiguchi, I. Shimoyama, N. Hirao, A. Narita, M. Nagano, H. Noguchi, "Molecular orientation of silicon polymer thin film evaporated on indium tin oxide surface" The 23rd Conference of Japan Society for Synchrotron Radiation, January 6–9, **2010**, Himeji, Japan. Abstract p. 66.

14. **Md. Abdul Mannan**: Synthesis and structural analysis of B-C-N hybrid films and related low-dimensional materials. JAEA Special Seminar, February 24, **2010**, Houkoukan, Synchrotron Radiation Research Center, Japan. (Ref. http://wwwapr.kansai.jaea.go.jp/srrc/02/).

15. **Md. Abdul Mannan**, Yuji Baba, I. Shimoyama, Norie Hirao, H. Noguchi, Masamitsu Nagano: Self-ordering of silicon polymer studied by polarization-dependence NEXAFS. The 27th PF Symposium. March 9-10, **2010** Tsukuba Congress Hall, Tsukuba, Japan. Abstract p. 70.

16. **Md Abdul Mannan**, Baba Y., Sekiguchi T., Shimoyama I., Hirao N., Narita A., Nagano M., Noguchi H., "*Self-ordering of silicon polymer studied by X-ray absorption spectroscopy*". The 90th Annual Meeting of the Chemical Society of Japan, March 26–29, Osaka, Japan **2010**. Abstract: E1-44.

17. **Md. Abdul Mannan**, Yuji Baba, I. Shimoyama, Norie Hirao, H. Noguchi, Masamitsu Nagano: Effect of substrates on the molecular-orientation of hexagonal B-C-N hybrid films. European Conference on Surface Science (Ecoss26), Auditorium Paganini Centro Congressi, Parma Italy, August 30-September 4, **2009**. Abstract page 11-12.

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19. **Yuji Baba**, T. Sekiguchi, I. Shimoyama, Mitsunori Honda, Norie Hirao, Norie Hirao, Aymi Narita, **Md. Abdul Mannan**: Real-time observation of electronic structure and orientation at nanometer scale for silicon polymer. Eleventh International Conference on Electronic spectroscopy & structure, Nara, October 6-10, **2009**, Japan. Abstract no. 8BP26, page no. 74.

20. **Md. Abdul Mannan**, Masamitsu Nagano, Norie Hirao, Yuji Baba: Synthesis and characterization of oriented hexagonal BCN films by RF plasma enhanced chemical vapor deposition. The 1st Saga University and Daegu University Joint Seminar on New Trends in Chemistry and Biology, January 23, **2008**, Japan. Abstract page no. L-5.

21. **Md. Abdul Mannan**, Masamitsu Nagano, Norie Hirao, Yuji Baba: NEXAFS and XPS studies on the hexagonal boron carbonitride films synthesized by radiofrequency plasma CVD. 3rd JAEA Synchrotron Radiation Research Symposium, Japan Atomic Energy Agency, Kansai Photon Science Institute/Synchrotron Radiation Research Centre, February 28-29, **2008**, SPring-8, Japan. Abstract page no. 307.

22. **Md. Abdul Mannan**, Masamitsu Nagano, Tetsuya Kida, Norie Hirao, Yuji Baba: XPS and NEXAFS studies on oriented hexagonal BCN film. 21st Kitakyushu Fall Meeting of the Ceramic Society of Japan, September 17-19, **2008**. Abstract page no. 124.

23. **Md. Abdul Mannan**, Tetsuya Kida, Masamitsu Nagano, Norie Hirao, Yuji Baba: Atomic arrangement, composition and orientation of hexagonal BCN films synthesized by

radiofrequency plasma enhanced CVD. The 25th International Korea-Japan Seminar on Ceramics, November 19-21, **2008**, Kangnung Korea. Abstract page, 164.

24. **Md. Abdul Mannan**, Masamitsu Nagano, Tetsuya Kida, Norie Hirao, Yuji Baba: Hybrid BCN films were prepared from tris-dimethylamino borane as precursor by RF plasma enhanced chemical vapor deposition. The Annual Meeting of The Ceramics Society of Japan, March 21-23, **2007**. Abstract page no. 282.

25. **Md. Abdul Mannan**, Masamitsu Nagano, Norie Hirao, Yuji Baba: Characterization of hexagonal boron carbonitride (h-BCN) films prepared by RF plasma enhanced CVD. The 24th International Japan-Korea Seminar on Ceramics, November 20-22, **2007**, Kakegawa, Shizuoka, Japan. Abstract Page no. 289-292.

26. **Md. Abdul Mannan**, Tetsuya Kida, Masamitsu Nagano: Plasma enhanced chemical vapor deposition of B-C-N films. The 3rd Kyushu-Busan/Kyungnam Joint Symposium on Advanced Ceramics, December 14-15, **2006**, Nagasaki University, Nagasaki, Japan, Abstract page 9-10.

Conducted Supervisions:

1. Ashrafun Nahar: M.Sc. degree awarded (2022).
   Title of the Thesis: Studies on Groundwater Quality of Rajshahi University Campus: Health Concerns Issues of Public Health.
2. Toshar Hossain: M.Sc. degree awarded (2022) in vitro antioxidant and phytochemical studies on neolamarckia cadamba and tamarindus indica.
3. Md. Zamil Khan: M.Sc. degree awarded (2020).
   Title of the Thesis: Graphene oxide-Poly (2-dimethylamino)ethyl methacrylate Nanocomposite: Synthesis, Characterization and dye adsorption ability.
4. Amina khatun: M.Sc. degree awarded (2020).
   Title of the Thesis: Evaluation of macro, macro nutrients and trace elements in some leafy vegetables of Bangladesh
5. Nurun Nahar Nipa: M.Sc. degree awarded (2019).
   Title of the Thesis: Functionalization of hexagonal boronitate(h-BN) with silver diethyldithiocarnamate by thermal process at different temperature and it's characterization
6. Liton Chandra: M.Sc. degree awarded (2018).
   Title of the Thesis: *Averrhoa bilimbi*: A prospective source of bioactive compounds against antimicrobial and cytotoxic activity.
7. Farhana mostari: M.Sc. degree awarded (2013).
   Title of the Thesis: Investigation of the plant *mimusops elengi* and evaluation of antioxidant and biological activities.

Conducted Research Projects of Science Faculty of Rajshahi University:

1. As principal investigator. (FY: 2023-24)
   Title of the Project: Evaluation of Macro and Micro Nutrients as well as toxic trace elements in Some Selected Herbal Plants of Bangladesh: A Nutritional and Medicinal Potency for

Public Health.

2. As principal investigator: (FY: 2021-22)
   Title of the Project: Determination of Essential and Harmful Heavy Metals in Some Typical Medicinal Plants in Bangladesh.
3. As principal investigator. (FY: 2020-21)
   Title of the Project: Assessment of macro and micro nutrients in Holy basil (Tulsi): A possible supplement for natural medicine.
4. As principal investigator. (FY: 2018-19)
   Title of the Project: Assessment of antimicrobial activity and quantitative assay of essential minerals of *Carissa carandas* (Karamch) and *Averrhoa bilimbi* (Bilumbi) fruits of Bangladesh.
5. As principal investigator. (FY: 2017-18)
   Title of the Project: Determination of heavy metals concentration accumulation in fish samples after feeding of synthetic fish feed: Quality and health concern aspects of Bangladesh.
6. As co-investigator. (FY: 2012-13)
   Title of the Project: Chemical and Biological Investigation of some Medicinal Plants Specially *Vitex neganda* and *Wedalia chinessis*.

Awards and Research Grants:

1. Obtained Special Research Fellowship at Japan Atomic Energy Agency, Tokai-mura Ibaraki-ken, Japan (2010).
2. Obtained Japanese Government Scholarship (Monbukagakusho) for PhD. Study at Saga University, Japan (2008-2010).
3. Obtained Japanese Government Scholarship (Monbukagakusho) for M.Eng. Study at Saga University, Japan (2005-2007).
4. Obtained Sasagawa Research Grant, Japan Science Society, Japan (2008).
5. Obtained Shaheed Hobibur Rahman Gold Medal for outstanding result of B.Sc. (Hons) Degree (1997).
6. Obtained Rajshahi Education Board Government Scholarship for the outstanding result of the Higher Secondary Certificate Examination (1992).
7. Obtained Rajshahi Education Board Government Scholarship for the outstanding result of the Secondary School Certificate Examination (1990).
8. Obtained Junior Government Scholarship for outstanding result of Class Eight Level (1988).

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