CURRICULUM VITAE

Dr. A. F. M. Mustafizur Rahman

Professor (2nd Grade) Department of Applied Chemistry and Chemical Engineering, University of Dhaka, Dhaka-1000, Bangladesh and Director, Center for Climate Change Studies and Resource Utilization University of Dhaka, Dhaka-1000, Bangladesh Phone: 880-1914861098(Cell), (880)-29661900-59/7405 (Office) Fax: (880)-29667222 <u>E-mail</u>: mustafizacce@du.ac.bd; banglatapu@yahoo.com

Educational Background:

- Ph.D : March 2006, Organometallics and Synthetic Organic Chemistry, Department of Chemistry, Graduate School of Science and Engineering, Yamaguchi University, Japan (*Result:* Obtained Grade 'A')
- M.S. : March 2003, Organic Chemistry, Department of Chemistry and Earth Science, Graduate School of Science and Engineering, Yamaguchi University, Yamaguchi City, Japan (*Result:* Obtained Grade 'A')
- M.Sc : July 1997, Department of Applied Chemistry and Chemical Technology, University of Dhaka, Bangladesh (Session: 1992-93)
 (*Result:* Obtained 1st Class)
- B.Sc : June 1995, Department of Applied Chemistry and Chemical Technology, University of Dhaka, Bangladesh (Session: 1989-90)
 (*Result:* Obtained 1st Class)
- H.S.C: 1988, Govt. Ananda Mohan College, Mymensingh (*Result:* Obtained 1st Division)
- *S.S.C*: 1986, Ashujia J.N.C. Institution, Kendua, Netrokona (*Result:* Obtained 1st Division)

Previous Employment (Start from the latest one):

Professor (University of Dhaka); May, 2016 – Present
Associate Professor (University of Dhaka); October, 2011 – April, 2016
Assistant Professor (University of Dhaka); April, 2008 – September, 2011
Lecturer (University of Dhaka); September, 2006 – March, 2008
Research Assistant Professor (Shiga University of Medical Science); April, 2006 – Nov., 2006
Foreign Research Student (Yamaguchi University, Japan); October, 2000 – March, 2001
Research and Development Officer (The ACME Laboratories Limited); July, 1998–September, 2000

Research Experience as Postdoctoral Fellow/ Visiting Researcher:

April 2006 – November 2006, NEDO Postdoctoral Fellow (Japan) November 2008 – November 2010, JSPS Postdoctoral Fellow (Japan) December 2013–March 2014, JASSO Postdoctoral Fellow (Japan) June 2015–December 2015, CAS Visiting Scientist (China) December 2019–March 2020, Visiting Professor at Kyoto University (Japan)



Academic Awards/Scholarships:

- <u>President Award</u>: "The President Award for the best researcher in Doctoral Course: 2006" by Yamaguchi University, Japan.
- <u>Young Researcher Award</u>: "Research Grant for Young Researcher 2006" by Shiga University of Medical Science, Japan (2,500,000 yen).

Japanese Government (Monbusho) Scholarship: For pursuing MS and PhD degrees at Yamaguchi University, Japan (From October, 2000 – March, 2006)

Merit Based Scholarship: by University of Dhaka, Bangladesh, (From 1990 – 1993)

Research Interest:

- 1. Preparation and characterization of bionanocomposites for biomedical applications and to study drug release kinetics.
- 2. Separation of Carbon nanotubes (CNTs) by means of Host-Guest complexation, using organic tweezers molecules.
- 3. Synthesis of Organometallics and Organic molecules and their antimicrobial evaluation.
- 4. Isolation of bioactive compounds from indigenous medicinal plants.
- 5. Biodiesel production and evaluation its environmental impacts

Personal skills and competences (Teaching and Education):

- Taught undergraduate and graduate level chemistry and technology courses, designed curriculum, conducted research projects, mentored students, and published research papers.
- Implemented innovative laboratory experiments that fostered practical application of theoretical concepts.
- Supervised ample numbers of MS and PhD research projects (about 40), resulting in numerous student publications and presentations at national and international conferences.
- Designed and executed engaging laboratory experiments, promoting critical thinking and scientific inquiry skills.
- Utilized strong communication skills to effectively convey complex scientific concepts to students, resulting in improved understanding and academic performance.

Skills:

- Chemical Analysis
- Laboratory Techniques
- Curriculum Development
- Data Analysis
- Research Methodology
- Teaching Strategies
- Scientific Writing
- Critical Thinking
- Time Management
- Team Leadership
- Problem Solving

Member of the Professional Bodies:

- Life Member- Dhaka University Alumni Association
- Life Member- Bangladesh Chemical Society
- Life Member- Japanese Universities Alumni Association in Bangladesh
- Life Member- Bangladesh JSPS Alumni Association
- Member of the Academic Council of Dhaka University since 2016
- Expertise Member of Bangladesh Council for Scientific & Industrial Research, BCSIR
- Chairman of the Committee for Inks and Allied Products of Bangladesh Standard & Testing Institution, BSTI
- Expert member of the Bangladesh Accreditation Board (BAB)

Experiences as Administrator & Project Head:

- Working as Director (Additional responsibility): Center for Climate Change Study and Resource Utilization, University of Dhaka, Since October'2023.
- Worked as Assistant House Tutor: Dr. Muhammad Shahidullah Hall, University of Dhaka (2008)
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Preparation and Characterization of Bio-nano-composits for Bio-medical Applications", 2011-2012.
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Functionalization of Carbon Nanotubes for Biological Applications", 2012-2013.
- Worked as Project Director in the Ministry of Science and Information & Communication Technology Project: "Development of Efficient Methods to Synthesize Novel Azulene Derivatives and Investigation of their Scope for Chemical and Medicinal Applications", 2013-2014.
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Functionalization of Multi-Walled Carbon Nanotubes (CNTs) for Controlled Drug Release", 2014-2015.
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Production of Biodiesel from Roina Seeds and Evaluation of its Fuel Properties", 2016-2017.
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Preparation and Characterization of Herbicide Incorporated Biocomposite for Controlled Release of Herbicide", 2019-2020.
- Worked as Project Director in the University Grants Commission UGC Bangladesh Project: "Preparation of Graphitic Carbon Nitride (g-C3N₄)/PVA-Gelatin Nanocomposite: An Approach for Significant Drug Release", 2021-2022.
- Worked as Project Director in the Ministry of Science & Technology Project: "Development of Protein-Functionalized Graphitic Carbon Nitride Composite for Transdermal and Target-Specific Drug Delivery by Approaching Magnetic Hyperthermia", 2023-2024.

Language Proficiency:

Bengali	-	Mother tongue
English	-	Excellent
Japanese	-	Fair enough
Arabic	-	Read and write

List of Major Research Publications:

- 1. 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*, Vol. 10, No. 6, Article: e27639, pp. 1–18, March, **2024**.
- Mashrafi Bin Mobarak, M. Nahidul Islam, Fariha Chowdhury, Md. Najem Uddin, Md. Sahadat Hossain, Monika Mahmud, Umme Sarmeen Akhtar, Nazmul Islam Tanvir, A. F. M. Mustafizur Rahman, Samina Ahmed, Calcined chicken eggshell-derived biomimetic nano-hydroxyapatite as a local drug-delivery aid for doxycycline hyclate: characterization, bioactivity, cytotoxicity, antibacterial activity and in vitro release study, *RSC Advances*, Vol. 13, No. 51, pp. 36209– 36222, December, 2023.
- 3. Monika Mahmud, **A. F. M. Mustafizur Rahman**, Khandoker Samaher Salem, Md. Latiful Bari, Hongdeng Qiu, Architecting Ultrathin Graphitic C₃N₄ Nanosheets Incorporated PVA/Gelatin Bionanocomposite for Potential Biomedical Application: Effect on Drug Delivery, Release Kinetics, and Antibacterial Activity, *ACS Appl. Bio Mater.* Vol. 5, No. 11, 5126–5139, November, **2022**.
- 4. Sujit Kumar Banik, Sazia Iftekhar, A. F. M. Mustafizur Rahman, Md. Latiful Bari, M. S. Islam, Bioactive potential of Aphanamixis polystachya seed extracts, *Bangladesh J. Sci. Ind. Res.*, Vol. 56, No. 2, pp.75-86, June, **2021**.
- 5. Sanjana Islam, Md. Kamruzzaman, Swapan Kumar Ray, A. F. M. Mustafizur Rahman, Controlled Release of 2,4-Dichlorophenoxyacetic Acid Herbicide from Acrylamide Grafted Jute Polymer, *Dhaka Univ. J. Sci.*, Vol. 68, NO. 2, pp. 105-110, July, **2021**.
- Sazia Ifteqar, Rajia Sultana, Sujit Kumar Banik, A. F. M. Mustafizur Rahman, Production and Characterization of Biodiesel from *Aphanamixis polystachya* Seed Oil, *Dhaka Univ. J. Sci.*, Vol. 68, NO. 2, pp. 129-136, July, 2021.
- Abdulla Al Mamun, Aklima Begum, Ariful Islam, Ashraful Mamun, Md. Asaduzzaman, A. F. M. Mustafizur Rahman, M. Nazmul Haque Siddique, M. Shafiul Alam, Design, Implementation and Testing of a Microcontroller-based Formalin Detection Kit, Euro. *J. Adv. Engg. Tech.*, Vol. 7, No. 6, pp. 1–12. June, 2020.
- 8. Sadia Sharmeen, A. F. M. Mustafizur Rahman, Mostakima M. Lubna, Kh Samaher Salem, Rafiqul Islam, Mubarak A. Khan, Polyethylene glycol functionalized carbon nanotubes/gelatin-chitosan nanocomposite: An approach for significant drug release, *Bioactive Mat.*, Vol. 3, No. 3, pp. 236–244. March, **2018**.
- Ajoy Kumar Bauri, Sabine Foro, A. F. M. Mustafizur Rahman, rac-(9R,10R)-3,6,9,10-Tetrabromo-8,8-dimethyl-9,10-dihydro-2H,8H-pyrano[2,3-f]chromen-2-one(tetrabromoseselin): a photobiochemically active pyranocoumarin, *IUCrData*, Vol. 3, Part- 3, pp. x180346, March, 2018. CCDC reference: 1826410
- 10. Ajoy Kumar Bauri, Sabine Foro, A. F. M. Mustafizur Rahman, Crystal structure of tetra¬hydro-seselin, an angular pyran¬ocoumarin, *Acta Cryst.* Vol. E73, No. 8, pp. 1117–1120, August, 2017.
- 11. Tianpei Cai, Haijuan Zhang, A. F. M. Mustafizur Rahman, Yan-Ping Shi, Hongdeng Qiu, Silica grafted with silanized carbon dots as a nano-on-micro packing material with enhanced hydrophilic selectivity, *Microchim Acta*, Vol.184, No. 8, pp. 2629–2636, August, 2017.
- Ajoy Kumar Bauri, Sabine Foro, A. F. M. Mustafizur Rahman, Crystal structure of dibromomethoxyseselin (DBMS), a photobiologically active pyranocoumarin, *Acta Cryst.* Vol. E73, No. 5, pp. 774–776, May, 2017.

- 13. Ajoy Kumar Bauri, Sabine Foro, A. F. M. Mustafizur Rahman, Crystal structure of a photobiologically active brominated angular pyranocoumarin: bromo-hydroxy-seselin, *Acta Cryst.* Vol. E73, No. 3, pp. 453–455, March, 2017.
- 14. Md Arephin Al Islam, A. F. M. Mustafizur Rahman, Sazia Iftekhar, Khandoker Samaher Salem, Nahida Sultana, Md. Latiful Bari, Morphology, Thermal Stability, Electrical, and Mechanical Properties of Graphene Incorporated Poly(vinyl alcohol)-Gelatin Nanocomposites, *Inter. J. Comp. Mat.*, Vol. 6, No. 6, pp. 172-182. December, **2016**.
- 15. Tianpei Cai, Haijuan Zhang, Zhan Li, A. F. M. Mustafizur Rahman, Hongdeng Qiu, A new nano-on-micro stationary phase based on nanodiamond bonded on silica for hydrophilic interaction chromatography, *RSC Advances*, Vol. 6, No. 39, pp. 32757-32760, March, **2016**.
- 16. Salma Sultana, Kumkum Habib, M. Rabiul Islam, Nirmal Chandra Dafader, M. Emdadul Haque, A. F. M. Mustafizur Rahman, Study on the Swelling Behavior of Gamma Radiation Induced Acrylamide/Carboxymethyl Cellulose Blend Hydrogel in Urea Solution, *Dhaka Univ. J. Sci.*, Vol. 64, NO. 2, pp. 105-108, July, 2016.
- 17. Tasrina RC, Rowshon Afroz, A. F. M. Mustafizur Rahman, Rafiqul Islam, MP Ali, Heavy Metals Contamination in Vegetables and its Growing Soil, *J. Environ. Anal. Chem.*, Vol. 2, No. 3, pp. 142-147, June, 2015.
- 18. Kh Samaher Salem, Mostakima M Lubna, A. F. M. Mustafizur Rahman, Md. NurNabi, Rafiqul Islam, Mubarak A Khan, The effect of multiwall carbon nanotube additions on the thermo-mechanical, electrical, and morphological properties of gelatin–polyvinyl alcohol blend nanocomposite, J. Comp. Mat., Vol. 49, NO. 11, pp. 1379-1391, May, 2015.
- 19. Md. Shaikh Ahsan Ullah, M. Mahboob Ali Siddiqi, A. F. M. Mustafizur Rahman, A. M. Sarwaruddin Chowdhury, Choudhury M. Hasan, Antimicrobial and Cytotoxic Activities of the Crude Extracts of *Lannea coromandelica*, *Dhaka Univ. J. App. Sci. & Engin.*, Vol. 2, NO. 2, pp. 165-167, January, **2014**.
- 20. A. F. M. Mustafizur Rahman, S. M. Fuad Kabir, Md. Nurnabi, A. M. Sarwaruddin Chowdhury, Md. Al Amin Sikder, Chemical and Biological Investigations of *Axonopus compressus* (Sw.) P. Beauv., *Bang. Pharm. J.*, Vol. 17, No. 1, pp. 113-115, January, 2014.
- 21. Gang Liu, A. F. M. Mustafizur Rahman, Songpol Chaunchaiyakul, Takahide Kimura, Yuji Kuwahara, Naoki Komatsu, Bis(tert-butylpyrene) Nanotweezers and Nanocalipers: Enhanced Extraction and Recognition Abilities for Single-Walled Carbon Nanotubes, *Chem. Eur. J.*, Vol. 19, No. 48, pp. 16221-16230, November, 2013.
- 22. Yuda Li, A. F. M. Mustafizur Rahman, Gang Liu, Zichao Xiong, Kenji Koezuka, Zhigao Xu, Naoki Komatsu, Feng Wang, Enrichment of Large-Diameter Single-Walled Carbon Nanotubes (SWNTs) with Metallo-Octaethylporphyrins, *Materials*, Vol. 6, No. 8, pp. 3064-3078, July, **2013**.
- Ayesha Haque, M. Mahboob Ali Siddiqi, A. F. M. Mustafizur Rahman, A. M. Sarwaruddin Chowdhury, Choudhury M. Hasan, Isolation of Betulinic Acid and 2,3-Dihydroxy Olean-12-en-28-oic Acid from the Leaves of *Callistemon linearis*, *Dhaka Univ. J. Sci.*, Vol. 61, NO. 2, pp. 211-212, July, **2013**.
- 24. Mst. Taslima Khatun, M. Mahboob Ali Siddiqi, Al-Mansur M. A., M. H. Sohrab, A. F. M. Mustafizur Rahman, A. M. Sarwaruddin Chowdhury, Choudhury M. Hasan, New diarylheptanoid from *Garuga pinnata Roxb*, *Dhaka Univ. J. Sci.*, Vol. 61, NO. 2, pp. 131-134, July, 2013.
- Md. Al Amin Sikder, Tasnuva Sharmin, A. F. M. Mustafizur Rahman, Mohammad A. Rashid, Biological screening of four medicinal plants of Bangladesh, *Dhaka Univ. J. Pharm. Sci.* Vol. 12, NO. 1, pp. 59-62, June, 2013.
- 26. A. F. M. Mustafizur Rahman, Md. Sharif Al Asad, Chemical and Biological Investigation of the Leaves of *Gynura procumbens, Int. J. Biosci.*, Vol. 3, NO. 4, pp. 36-43, April, **2013**.

- 27. Ayesha Haque, M. Mahboob Ali Siddiqi, **A. F. M. Mustafizur Rahman**, A. M. Sarwaruddin Chowdhury, Choudhury M. Hasan, Antimicrobial and Cytotoxic Activities of the Crude Extracts of *Callistemon linearis*, *Int. J. Biosci.*, Vol. 3, NO. 3, pp. 129-133, March, **2013**.
- 28. Gang Liu, Feng Wang, Xiaobin Peng, A. F. M. Mustafizur Rahman, Ajoy Kumar Bauri, Naoki Komatsu, Separation of Left- and Right-Handed Structures of Single-Walled Carbon Nanotubes Through Molecular Recognition, *Handbook of Biomedical Applications of Carbon Nanomaterials*, Chapter-6, pp. 203-232, 2012.
- Adnan Hossain Khan, Parimal Bala, A. F. M. Mustafizur Rahman, Mohammad Nurnabi, Investigations of Microstructural and Layer Disorder Parameters of Na-Montmorillonite-Glycerine Intercalation Compounds, *Dhaka Univ. J. Sci.*, Vol. 60, NO. 1, pp. 25-29, January, 2012.
- 30. Feng Wang, Kazunari Matsuda, A. F. M. Mustafizur Rahman, Takahide Kimura, Naoki Komatsu, Improved selectivity in discriminating handedness and diameter of single-walled carbon nanotubes with N-substituted 3,6-carbazolylene-bridged chiral diporphyrin nanotweezers, *Nanoscale*, Vol. 3, No. 10, pp. 4117-4124, June, **2011**.
- 31. A. F. M. Mustafizur Rahman, Feng Wang, Kazunari Matsuda, Takahide Kimura, Naoki Komatsu, Diameter-based separation of single-walled carbon nanotubes through selective extraction with dipyrene nanotweezers, *Chem. Sci.*, Vol. 2, No. 5, pp. 862-867, May, **2011**.
- 32. A. F. M. Mustafizur Rahman, Md. Shahin Reza, Mohammad Ismail, Mohammad Nurnabi, Md. Naimul Haque, Production of Biodiesel from Karanja (*Pongamia pinnata*) Oil and Comparison of Its Fuel Properties with Commercial Diesel, *Dhaka Univ. J. App. Sci. & Engin.*, Vol. 2, NO. 1, pp. 25-29, July, 2011.
- 33. A. F. M. Mustafizur Rahman, Mohammad Erfanul Haque, Md. Nurnabi, A. M. Sarwaruddin Chowdhury, Mohammad A. Rashid, Chemical and Biological Investigation of *Phyllanthus niruri*. Isolation of a Pure Compound from Crude Dichloromethane Extract, *Dhaka Univ. J. Sci.*, Vol. 59, NO. 2, pp. 271-274, July, 2011.
- 34. A. F. M. Mustafizur Rahman, Md. Abbas Alam, Mohammad Nurnabi, A. F. M. Hafizur Rahman, Mohammad S. Rahman, Mohammad A. Rashid, Antimicrobial and Brine Shrimp Lethality of Fruit Extracts of *Terminalia chebula*. Isolation of a New Compound, *Dhaka Univ. J. Sci.*, Vol. 59, NO. 2, pp. 267-270, July, 2011.
- 35. Xiaobin Peng, Feng Wang, Ajoy Kumar Bauri, A. F. M. Mustafizur Rahman, Naoki Komatsu, Optical Resolution of Single-Walled Carbon Nanotubes through Molecular Recognition with Chiral Diporphyrin Nanotweezers, *Chem. Lett.*, Vol. 39, No. 10, pp. 1022-1027, August, **2010**.
- 36. Feng Wang, Kazunari Matsuda, A. F. M. Mustafizur Rahman, Xiaobin Peng, Takahide Kimura, Naoki Komatsu, Simultaneous Discrimination of Handedness and Diameter of Single-Walled Carbon Nanotubes (SWNTs) with Chiral Diporphyrin Nanotweezers Leading to Enrichment of a Single Enantiomer of (6,5)-SWNTs, J. Am. Chem. Soc., Vol. 132, No. 31, pp. 10876-10881, July, 2010.
- 37. A. F. M. Mustafizur Rahman, Mohammad Nurnabi, Directed ortho lithiation of sulfonylazulenes. An efficient method to introduce substituents at the 2-position of azulene, *Dhaka Univ. J. Sci.*, Vol. 58, NO. 2, pp. 157-160, July, 2010.
- 38. A. F. M. Mustafizur Rahman, Sumanta Bhattacharya, Xiaobin Peng, Takahide Kimura, Naoki Komatsu, Unexpectedly large binding constants of azulenes with fullerenes, *Chem. Commun.*, No. 10, pp. 1196-1198, March, 2008.
- 39. A. F. M. Mustafizur Rahman, Toshihiro Murafuji, Toshihisa Shibasaki, Kouichi Suetake, Kei Kurotobi, Yoshikazu Sugihara, Nagao Azuma, Yuji Mikata, Characterization of azulenylphosphine derivatives. Unexpected debromination and its synthetic utility in the preparation of 2-substituted azulene, *Organometallics*, Vol. 26, No. 12, pp. 2971-2977, February,

2007.

- Toshihiro Murafuji, Takako Azuma, Youhei Miyoshi, Motoko Ishibashi, A. F. M. Mustafizur Rahman, Kouto Migita, Yoshikazu Sugihara, Yuji Mikata, Inhibition of jack bean urease by organobismuth compounds, *Bioorg. & Med. Chem. Lett.*, Vol. 16, No. 6, pp. 1510-1513, March, 2006.
- 41. A. F. M. Mustafizur Rahman, Toshihiro Murafuji, Motoko Ishibashi, Youhei Miyoshi, Yoshikazu Sugihara, Chlorination of p-substituted triarylpnictogens by sulfuryl chloride: Difference in the reactivity and spectroscopic characteristics between bismuth and antimony, *J. Organomet. Chem.*, Vol. 690, No. 19, pp. 4280-4284, August, **2005**.
- 42. A. F. M. Mustafizur Rahman, Toshihiro Murafuji, Kei Kurotobi, Yoshikazu Sugihara, Nagao Azuma, First introduction of an azulenyl group into the bismuth and antimony center, Synthesis and structure of azulenylbismuthanes and their difluorides, *Organometallics*, Vol. 23, No. 26, pp. 6176-6183, December, **2004**.
- 43. A. F. M. Mustafizur Rahman, Toshihiro Murafuji, Motoko Ishibashi, Youhei Miyoshi, Yoshikazu Sugihara, Effect of π -accepting substituent on the reactivity and spectroscopic characteristics of triarylbismuthanes and triarylbismuth dihalides, *J. Organomet. Chem.*, Vol. 689, No. 21, pp. 3395-3401, September, **2004**.
- 44. Toshihiro Murafuji, Youhei Miyoshi, Motoko Ishibashi, A. F. M. Mustafizur Rahman, Yoshikazu Sugihara, Isamu Miyakawa, Hidemitsu Uno, Antifungal activity of organobismuth compounds against the yeast Saccharomyces cerevisiae: stricture-reactivity relationship, *J. Inorg. Biochem.*, Vol. 98, No. 3, pp. 547-552, March, **2004**.
- 45. Kei Kurotobi, Hiroshi Tabata, Masato Miyauchi, **A. F. M. Mustafizur Rahman**, Kouto Migita, Toshihiro Murafuji, Yoshikazu Sugihara, Hirotsugu Shimoyama, Kunihide Fujimori, The first generation of azulenyllithium and -magnesium: A novel, versatile method of introducing a substituent at the 2-position of an azulene skeleton, *Synthesis*, No. 1, pp. 30-34, January, **2003**.
- 46. A. F. M. Mustafizur Rahman, Md. Ahad Ali, Abdur Rashid, Antibacterial compounds from the fruit of *Terminalia chebula*, *Dhaka Univ. J. Sci.*, Vol. 46, NO. 2, pp. 373-376, July, **1998**.

M. Kahman

Dr. A. F. M. Mustafizur Rahman