Curriculum Vitae (CV) of

S. M. ABDUR RAHMAN Ph.D.

(A) PERSONAL INFORMATION:

***Name*:** S. M. Abdur Rahman

Date of birth: 1st August, 1970

Current position: .1. Dean, Faculty of Pharmacy, University of Dhaka

2. Professor and Chairman, Department of Clinical Pharmacy and Pharmacology, Faculty of Pharmacy, University of Dhaka

Contacts: **Office:** Dean, Faculty of Pharmacy, University of Dhaka, Dhaka 1000 or Department of Clinical Pharmacy and Pharmacology, Faculty of Pharmacy, University of Dhaka, Dhaka -1000. Phone: 9661900-70/ext.4363 or 8166, Cell: 01732477343 .

Home: 39/F Fullar Road, Isha kha Residential area, University of Dhaka, Dhaka 1000..Phone: +8802-9667290 (Res).

Email address: smarahman@du.ac.bd, rahman_du@yahoo.com,

***Nationality* :** Bangladeshi

***Marrital Status*:** Married; have 4 children

(B) EDUCATION, RESEARCH and PROFESSIONAL EXPERIENCE:

***Education*:**

Degree/Research Trraining	**year**	**Field**	**Institution**	**Result/Credit**
Post-Doc (JSPS)	2004-2006	Bioorganic and Medicinal Chemistry	Osaka University, Graduate School of Pharmaceutical sciences	Completed Successfully with good results and publications
Post-Doc (JST)	2002-2004	Material Chemistry and Engineering Science	Osaka University, Graduate School of Engineering Sciences	Completed Successfully with good results and publications
Ph. D.	2001	Synthetic Organic and Medicinal Chemistry	Osaka University	Awarded Grade A
M. Pharm.	1991 (1995)	Pharmacy	Dhaka University	First Class First
B. Pharm.	1990 (1993)	Pharmacy	Dhaka University	First Class First

(The years within the brackets represent the actual year of completion of the degrees. The delay of completion is due to political unrest in the country as well as in the University).

Professional Experiences:

1) Technical Services Officer, Quality Control Officer and Method development in-Charge: Beximco Pharmaceuticals Ltd., (1.10.1995 to 31.12.1996).

2) Lecturer: Department of Pharmacy, Faculty of Pharmacy, University of Dhaka, Bangladesh (1.1.1997 to 15.2.2002)

3) Assistant Professor, Faculty of Pharmacy, University of Dhaka, (16.2.2002 to 24.4.2008)

4) Japan Science and Technology (JST) post-doctoral research fellow: Osaka University (1.4.2002 to 30.9.2004).

5) Japan Society of Promotion of Science (JSPS) fellow: Graduate School of Pharmaceutical Sciences, Osaka University (1.10.2004 to 30.9.2006).

6) Assistant Professor: Graduate School of Pharmaceutical Sciences, Osaka University (1.10.2006 to 29.2.2008)

7) Associate Professor: Department of Clinical Pharmacy and Pharmacology, University of Dhaka (25.4.2008 to 29.4.2012)

8) Professor: Department of Clinical Pharmacy and Pharmacology, University of Dhaka, (30.4.2012 to date)

9**) Dean:** Faculty of Pharmacy, University of Dhaka (19.1.2017 to date; being elected twice in the Faculty of Pharmacy)

10) **Chairman**, Department of Clinical Pharmacy and Pharmacology, University of Dhaka (30.5.2020 to date)

(C) OTHERS LEADING ADMINSTRATIVE/PROFESSIONAL ROLE:

1. House Tutor, Sahidullah Hall, Dhaka University (3rd July 2001 to 1st April 2002)

2. **Convenor**, Osakabashi (Bangladeshi organization in Osaka, Japan)(2005-2007)

3. Student Advisor, Faculty of Pharmacy (Jan 2010 to Dec 2016)

4. Assistant Proctor, University f Dhaka, (7.12.11 to February 22, 2017)

5. **Executive Member**, Pharmacy Council of Bangladesh (January 2017 to date)

6. **President**, Dhaka University Pharmacy Alumni Association (DUPAA) (Janury 2017 to Date)

7. **Executive Member**, Dhaka University Teachers Association (DUTA) (Jan 2017 to Dec 2017)

8. **Senate Member**, University of Dhaka (April 2017 to April 2020)

9. **Member**, Bangladesh Pharmaceutical Society

10. **Member**, Pharmacy Graduates Association of Bangladesh

12. **Member**, Drug Control Technical Committee, Director General of Drug Administration (DGDA)

13. **Member**, Drug Control Committee, Ministry of Health, Family Planning and Welfare

14. **Member**, Clinical Trial Advisory Committee, DGDA

15. **Member**, Adverse Drug Reaction Advisory Committee (ADRAC), DGDA

16. Member, Chemistry and Manufacturing of Vaccine and Bioproducts, DGDA.

17. **Trustee Board Member**, Essential Drugs Company Limited.

18. **Member**, Academic Council, Noakhali Science and Technology University

(D) TEACHING EXPERIENCES:

***As a lecturer in DU*:**

As a lecturer in DU, I taught Organic Pharmacy, Inorganic Pharmacy, Medicinal Chemistry, Biopharmaceutics, Pharmacology and Pharmacognosy to the Pharmacy graduate students of the Faculty of Pharmacy.

As an Assistant Professor in DU:

I have taken the courses of Organic Chemistry, Medicinal Chemistry, Pharmacology, Clinical Pharmacy to the graduating students and Masters students.

As an Associate Professor in DU:

I was engaged in teaching Pharmacology and Clinical Pharmacy in undergraduate and Masters program.

As Professor in DU:

Teaching role in various courses of Pharmacology, Disease Management and Clinical Pharmacy.

As a Guest Professors:

As a guest Professors, I was involved in teaching in several Universities in Bangladesh. Subject taught: Organic Pharmacy, Medicinal chemistry, Pharmacology, Clinical Pharmacy, Pharmaceutical analysis etc.

Expertise:

Pharmacology, Clinical Pharmacy, Synthetic Organic Chemistry, Bioorganic and Medicinal Chemistry, Nucleic acid Chemistry, Natural Product Chemistry, Drug development.

(E) RESEARCH EXPERIENCES:

Current Research:

1. ***Clinical Trails against COVID-19***: Recently, we have Completed the First Randomized Doble-blind Placebo Controlled Clinical Trials of Favipiravir on Hospitalized COVID-19 Patients in Bangladesh. The trial was registered in NIH *Clincal.Trial.gov* (NCT04402203) I was involved in this Trials an advisory investigator The Trials were conducted in four govt. hospitals in Bangladesh and we obtained very interesting results. The results will be published soon in high-impact health journal.
2. ***Bioactivity Directed Phytochemical Investigations of Indigenous Plants***: My group is working on bioactivity directed phytochemical investigation of various plants of Bangladesh. Extensive antidiabetic studies of some medicinal plant were also being accomplished in collaboration with Prof. Begum Rokeya, BIRDEM, Dhaka.
3. ***Synthesis of Biological Investigations of Benzimidazole and Nitazoxanide derivatives***: Extensive biological evaluations of synthesized compounds having benzimidazole structure are conducted to develop new therapeutic candidates.
4. ***Development of Novel Bridged Nucleic Acids for Gene Therapy and Diagnosis****:* This is HEQEP project funded by World bank/UGC. Bridged Nucleic Acids (BNA) are potential therapeutic tool for gene therapy. In this project, Novel highly functional BNA has been developed and their utility in gene therapy and diagnosis will be evaluated.

5. ***Investigation of vildagliptin as a new oral antidiabetic drug: its efficacy and risk assessment in renal and CVS in Bangladeshi Type 2 diabetic patient****:* This is a clinical research conducted in collaboration with BIRDEM. One of my Ph.D. students (who completed M. Phil under my supervision) is a medical doctor, working in BIRDEM and she is conducting this research.

Previous research:

1. ***Japan Society of Promotion of Science (JSPS) Post doc*** *(Project Tittle: Development of Novel Bridged Nucleic Acids (BNA) for Innovative Technologies in the Post-genome Era:)* During the past few decades, regulation of the gene expression by artificial oligonucleotides has attracted a great deal of attention to both chemists and biologists. Recently, modified and artificial oligonucleotides are being utilized vastly in various genomic technologies (such as antisense and/or antigene technologies, RNA interference (RNAi), DNA probe, decoy oligonucleotides, DNA chip etc.). A dramatic change in this area occurred with the inclusion of the bridged nucleic acids (BNAs), in which the conformation of the sugar moiety of oligonucleotides is fixed via bridging. BNAs, due to their several admirable properties, have got extreme popularity in chemical, biological and biomedical research fields. Among the BNAs, 2',4'-BNA (also known as LNA) having the most promising properties, has appeared as a versatile tool for application in various genomic technologies and is now commercially available. In this program, I successfully developed four novel artificial nucleic acids one of which is commercially available from two Companies in Japan and USA. This novel BNA namely, BNA-NC was utilized in several gene-based technologies. The results were patented and published in world leading high-impact Journals (1. Rahman, S. M. A. et al. *Angew. Chem. Int. Ed.* **2007**, *46*, 4306, 2. Rahman, S. M. A. et al. *J. Am. Chem. Soc***. 2008**, *130*, 4886; 3. Rahman, S. M. A. et al. *Chem. Commun***. 2007**, 3765).
2. ***Japan Science and Technology (JST) Project*** **(Project Title:** *Construction of Giant Pi-electronic Systems for Application in Material Science):* In this project, I was given an opportunity to work in the development of novel palladium (Pd)-catalyzed tandem cyclization reaction to construct useful molecules for diverse applications in material science. I successfully developed a domino-Heck type double cyclization reaction, catalyzed by Pd and utilized the methodology to synthesize various asymmetric biindenylidenes (Rahman, S. M. A. et al. *Org. Lett.* **2003**, *5*, 3411). Next, various bridged diarylethenes were synthesized efficiently by a palladium catalyzed reaction. Dirylethenes are important class of molecules (NLO phores, molecular rotors etc.) in material science. In contrast to the synthesis of biindenylidenes, in which case *trans* products were obtained exclusively, *cis* products were synthesized selectively which are more important in the application as a molecular motors. *Cis* products could be isomerized to trans pdoducts efficiently via a Pd-catalyzed isomerization reaction or photoirradiation. (Rahman, S. M. A. et al. *Org. Lett.* **2006**, *8*, 1197.).
3. ***Ph.D. Project*****:** *Total Synthesis of Bioactive Natural Products*. In the Ph. D. course at the Osaka University, Japan, I worked in the synthesis of bioactive natural products. I completed the first total

synthesis of (±)-Scopadulin, an antiviral aphidicolane diterpenoid having a tetracyclic ring structure. The synthesis of the core structure of Scopadulin was performed by stereoselective construction of fused tricyclic ring structure followed by remaining ring formation via intramolecular aldol condensation reaction. Stereoselective construction of a quaternary carbon center at C-4 by a cyano nucleophile, conversion of hindered cyano group to a methyl group (which required development of a novel organic reaction), and a highly streo- and chemo- selective methylation at C-16 provided scopadulin which was identical to the natural scopadulin in all respects. (Rahman, S. M. A. et al. *Org. Lett.* **2001**, *3*, 619; *J. Org. Chem.* **2001**, *66*,, 4831.: these results are picked up in a book: (In: *Dead Ends and Detours: Direct Ways to Successful Total Synthesis.* . pp 31-40, (2005), John Willy and Son's, ed. by Sierra, M. A. and de la Torre, M. C. (fwd. by Nicolaou, K. C.).

In the course of the synthetic studies of Scopadulin, a novel organic reaction for direct conversion of aliphatic amines into alcohols was demonstrated. It was found that various amines were efficiently converted to the corresponding alcohols by the treatment of KOH and diethylene glycol at high temperature. (1) Rahman, S. M. A. et al. *Org. Lett.* **2000**, *2*, 2893. 2) Rahman, S. M. A. et al. *Tetrahedron Lett.* **2001**, *49*, 8007.)

4. ***Master's Course Project***: *Hepatoprotective Principles from Pichrorhiza Kurooa, a Medicinal Herb of Nepal:* In this project, I conducted bioactivity directed phytochemical investigations of the perennial herb *Pichrorhiza Kurooa,* obtained from Herb Processing and Production Company Ltd. of Nepal. Two glycosides compounds Kutkoside and Picroside III were isolated in a pure form and characterized by spectroscopic methods. These compounds with their active fraction (named Picroliv) were investigated for hepatoprotective activity in rat model (biochemical parameters and histopathology, done in BIRDEM and PG hospitals), antiviral activity against Hepatitis B virus surface antigen (HBsAg) (at the PG hospital) and antibacterial activity against some gram +ve and gram –ve organisms. Toxicity study was accomplished in mice model and LD-50 was determined.

(F) RESEARCH GRANTS RECEIVED:

1) UGC grants 2009 (1,00000 Tk.)
2) UGC-JSPS (Japan Society of Promotion of Science) bilateral grants 2009-2011 (US$ 75,000)
3) TWAS Research grants from Italy 2009-2010 (US$ 11000)
4) Bangladesh Ministry of Science and Technology 2011-12 (8,00,000.00 Tk.)
5) AIF grant from World Bank for HEQEP project (2012-15): 343,67,000.00 TK
6) Bangladesh Ministry of Science and Technology 2013-14 (4,00,000.00 Tk.)
7) Grants from Ministry of Education 2013-14 (1,300,000.00 TK)
8) AIF grant from HEQEP, UGC (2017-2018) (5,000,000.00 TK)

(G) AWARD RECEIVED:

1) Dean Award" from the Faculty of Biological Science, DU for outstanding academic performances and regularity.
2) Awarded "Books prize" from Dhaka University for outstanding results in B. Pharm. And M. Pharm. Exams.
3) Awarded "Monbusho Scholarship" by Ministry of Science Education and Culture of Japan
4) Japan Science and Technology Corporation (JST) Post-doctoral fellowship award
5) Japan Society of Promotion of Science (JSPS) Post-doctoral Fellowship award.
6) UGC-JSPS joint projects award from JSPS and UGC.
7) TWAS Young Scientists award in Biological Science 2010.
8) Invitation and awards from Frater Raze Pharmaceuticals, Algeria.
9) Gold Medal Award in Biological Science 2019, Bangladesh Academy of Science

(H) RESEARCH INTERESTS:

1. Target oriented organic synthesis for developing novel therapeutic agent or improving the existing synthetic pathway.
2. Drug synthesis, structural modifications, SAR analysis
3. Nucleosides, Nucleotides and Nucleic acid chemistry and related biology.
4. Bioorganic and Medicinal Chemistry related topics: synthesis of target molecules and their application to biological process.
5. Transition metal catalyzed reactions (cyclization or various cross-coupling reactions) and their possible applications to develop various structures to be useful for biological and non-biological processes.
6. Clinical Trails and Clinical research.

(I) RESEARCH PUBLICATIONS:

Publications:

1) Hossain, M. J.; Rahman, S. M. A. Repurposing therapeutic agents against SARS-CoV-2 infection: most promising and neoteric progress. *Expert Rev Antiinfective Therapy.* **2020**; Dec 23, Doi:10.1080/14787210.2021.1864327 (online ahead of print).

2) Sultana, C.; Azad, M. A. K.; Rahman, M. M.; Muhit, M. A.; Rahman, S. M. A. Phytochemical and Biological Investigation of Stevia rebaudiana (Bert.) Leaves Grown in Bangladesh. *Dhaka Univ, J. Pharm. Sci.* **2020**, *19*, 191-97**.**

3) Hossain M. J.; Kuddus M. R,.; Rahman S. M. A. Knowledge, attitudes, andbehavioral responses toward COVID-19 during early phase in Bangladesh: a questionnaire-based study. *Asia Pac J Public Health* **2020**. DOI: 10.1177/1010539520977328.

4) Rahman, F. I.; Hossain, F.; Saqeeb, N.; Rahman, S. M. A. Synthesis and evaluation of pharmacological activities of some 3-O-benzyl-4-C-(hydroxymethyl)-1,2-O-isopropylidene-α-D-ribofuranose derivatives as potential anti-inflammatory agents and analgesics. *Res. Pharm. Sci.* **2020**, *15*, 209-217**.**

5) Brishty, S. R.; Saha, P.; Mahmud, Z. A.; Rahman, S. M. A. Synthesis and Evaluation of Analgesic and antioxidant Activities of substituted Benzimidazole Derivatives**.** *Dhaka Univ, J. Pharm. Sci.* **2020**, *19*, 37-46**.**

6) Saha, P; Brishty, S. R.; Rahman, S. M. A. Synthesis and Evaluation of Disubstituted Benzimidazole Derivatives as Potential Analgesic and Antidiarrheal Agents. *Ind. J. Pharm. Sci.* **2020**, *82*, 222-229**.**

7) Fujisaka, A. Hari, Y. Takuma, H. Rahman, S. M. A., Yoshikawa, H. Pang, G.,Imanishi, T. Obika, S. Effective syntheses of 2′,4′-BNANC monomers bearing adenine, guanine, thymine, and 5-methylcytosine, and the properties of oligonucleotides fully modified with 2′,4′-BNANC. *Biorg. Med. Chem. (**Elscevier Science UK**)***.*** **2019**, *27*, 1728 -1741.

8) Kamal S.; Shaheen S.M.; Rahman M. M.; and Rahman S. M. A. Potential Antimicrobial activity of Achyranthes Bidentata methanol extract against both gram (+)ve and gram (-)ve bacteria. *Pharmacology online* **2018**, *2*,223-228.

9) Sanam, S.; Nahar, S.; Saqeeb, N.; Rahman, S. M. A. A Validated RP-HPLC Method and Force Degradation Studies of Fexofenadine Hydrochloride in Pharmaceutical Dosage Form. *Dhaka Univ, J. Pharm. Sci.* **2018**, *17*, 43-50**.**

10) Sukul, S. Chowdhury, S.; Podder, S. K.. Rahman, S. M. A. A Comprehensive Evaluation of Peripheral Analgesic and Antipyretic Activities of Divalent Metal Complexes of Indomethacin. *Dhaka Univ, J. Pharm. Sci.* **2018**, *16*, 173-178.

11) Bodiuzzaman, B. S., Raka, S. C.; Rahman, A.; Rahman, S. M. A. Comparative in vitro equivalence evaluation of Fexofenadine hydrochloride 120 mg generic Tablets Marketed in Bangladesh. *World J. Pharm. Sci*. **2017**, *5*, 44-50.

12) Sukul, A. Podder, S. K. Haque, S. Saha, S. K.; Das, S. C.; Mahmood, Z. A. Rahman, S. M, A. Synthesis, Characterization and Comparison of Local Analgesic, Anti-Inflammatory, Ulcerogenic Activity of Copper and Zinc Complexes of Indomethacin.. *Antiinflamm Antiallergy Agents Med Chem. **2017**;15*(3):221-233.

13) Hasan, M. S. Das, N,; Begum, F.; Rahman, S. M. A. Sub-chronic toxicological studies of transition metal complexes of naproxen on sprague-dawley rats. *Alexandria, Journal of. Medicine* **2017***, 53*, 345-50,

14) Hossain, M. A.; Ganguly, A.; Rahman, S. M. A.; Hossain, A.; Hassan, M.; Rahmana, M. S. Amino acid profile of the gelatin extracted from the scales of catla, rohu, grass carp and their mixed type. *Bang. J. Zool*. **2016**, *44*, 185-95.

15) Das, N.; Hasan, M. S.; Begum, F.; Saha, S. K.; Rahman, S. M. A. A Detailed Study on Acute Toxicity of Transition Metal Complexes of Naproxen. *Toxicological International* **2016**, *23*, 240-45.

16) Hasan, M. S.; Das, N.; Mahmud, Z. A..Rahman, S. M. A. Phar,macological Evaluation of Naproxen Metal Complexes on Antinociceptive, Anxiolytic, CNS Depressant and Hypoglycemic Properties. *Adv. Pharm. Sci*. **2016**, Article ID 3040724: http://dx.doi.org/10.1155/2016/3040424. **(Hindawi Publisher, USA**)

17) Hasan, M. S.; Kayesh, R.; Begum, F.; Rahman, S. M. A. Transition Metal Complexes of Naproxen: Synthesis, Characterization, Forced Degradation studies and Analytical Method Verification. *J. Anal. Meth. Chem*. **2016**, 1-10. **(USA**).

18) Podder, S. K.; Saqeeb, N.; Rahman, S. M. A. Synthesis and Biological evaluation of2-Methyl-1H-benzimidazole and 1H-benzimidazole-2yl-Methanol. *Dhaka Univ, J. Pharm. Sci*. **2016**, *15*, 83-87

19) Subedi, N. K.; Rahman, S. M. A.; Akbar, M. A. Analgesic and Antipyretic Activities of Methanol extract and its fraction from the root of Schoenoplectus grossus. *Evidenced Based Complementary and Alternative Medicine* **2016**, Article ID 3820704, 8 pages http://dx.doi.org/10.1155/2016/38207043820704. **(USA)**

20) Ganguly, A.; Mahmood, Z, A.; Saha, S. K.; Rahman, S. M. A. Anti-nociceptive and anti-diarrheal activities of Manikara zapota leaves in Swiss- albino mice.. *Pharmaceutical Biology* **2016**, *54***,** 1413-1419. (***Taylor and Francois*, USA).**

21) Hossain, F.; Podder, S. K. Ganguly, A.; Rahman, S. M,.A. Investigation of CNS Depressant, Anti-diarrheal and Cytotoxic Activities of Crude Methanolic Extracts of Acacia nilotica and Justicia adhatoda root. *Indo Am. J. Pharm. Res*. **2016**, *6*, 3954-3961.

22) Moniruzzaman, M,; Asaduzzaman, M.; Hossain, M. S.; Sarker, J.; Rahman, S. M. A., Rashid, M.; Rahman, M. In-Vitro antioxidant and cholinesterase inhibitory activities of methanol fruit extract of phyllanthus acidus. *BMC Complementary and Alternative Medicine* **2015**, *15*,403. **(Biomed Central, UK**)

23) Mansura A.; Saha, S. K.; Rahman, S. M. A. Gastroentro-histopathology Studies of Synthesized Naproxen esters in Young Healthy Sprague-Dawly rat Model. *Dhaka Univ, J. Pharm. Sci.* **2015**, *14*, 49-53.

24) Mantaj, J.; Rahman S. M. A.; Bokshi, B.; Hasan, C. M.; Jackson, P. J. M.; Parsons, R. B.; Rahman, K. M. Crispane E, a cis—cleredon diterpene inhibits STAT3 dimerization in breast cancer cells. *Org. Biomol. Chem.* **2015**, *13*, 3882-85. **(Royal Society of Chemistry, UK)**

25) Ganguly, A.; Rahman, S. M. A. Evaluation of the Cytotoxic, Antimicrobial, Antioxidant, Anthelmintic and CNS Depressant Activities of Manilkara zapota Leaf (Sapotaceae). World *Journal of Pharmaceutical Research* **2015**, *4*, 272-283.

26) Mohanta, M. C.; Ganguly, A.; Begum, F.; Rahman, S. M. A. Evaluation of Antinociceptive properties of drynaria quercifolia rhizome in Swiss albino mice. *J. Pharm. Res.* **2014**, *8*, 41-44.

27) Mohanta, M. C; Ganguly, A.; Begum F.; Rahman, S. M. A. Evaluation of anti-nociceptive properties of *Drynaria quercifolia* rhizome in Swiss-albino mice. *J. Pharm. Res.* 2014, 8(1), 41-44. Available from: http://jpronline.info/

28) Hossain M. M.; Even A. S. M.I. H.; Akbar M. A.; Ganguly, A.; Rahman, S. M. A. Evaluation of analgesic activity of *Sterculia villosa* Roxb. bark in Swiss-Albino mice. *Dhaka Univ. J. Pharm. Sci.* 2013, 12(2), 125-129. Available from: http://www.banglajol.info/index.php/JPharma

29) Ganguly, A.; Mahmood, Z, A.; Uddin, M. N.; Rahman, S. M. A. In-Vivo anti-inflammatory and antipyretic activities of Manikara zapota leaves in albino Wister rats. *Asian Pac. J. Trop. Dis.* **2013**, *3*, 301-307. Available from: http://www.sciencedirect.com/science/article/pii/S2222180813600730

30) Bokshi, B.; Rahman, S. M. A.; Sadhu, S. K.; Muhammad, A.; Islam, M. A. Assessment of Analgesic and Antidiarrhoeal Activities of Different Fractions of Crude Extract of Stephania Japonica Stem. *Int. J. Pharm. Sci. Res*. **2013**, *4*, 1233. Available from: http://ijpsr.com/V4I3/52%20Vol.%204,%20Issue%203,%20March%202013,%20IJPSR-2194,%20Paper%2052.pdf

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33) Dey, A.; Rahman. S. M.A.; Ahsanul Akbor, M.; Hamiduzzaman, M.; Monir Hossain, M. Evaluation of Analgesic and antidiarrhoeal Activity of Whole Plant Boerhavia Repens. *Int. Res. J. Pharm.* **2012**, *3*, 102. Available from: http://www.irjponline.com/admin/php/uploads/1428_pdf.pdf

34) Khan, A. R.; Hasan, M.; Rahman, S. M. A. Invitro Antimicrobial and Cytotoxic Activities of Tamarindus Indica Seeds. *Int. J. Sust. Agril. Tech.* **2011**, *7*, 13.

35) Torigoe, H.; Rahman, S. M. A.; Takuma, H.; Sato, N.; Imanishi, T. Obika, S. 2'-O, 4-C, -Amino Methylene bridged nucleic acids modification with enhancement of nuclease resistance promotes pyrimidine motif triplex nucleic acid formation at physiological pH: *Chem. Eur. J.* (***Willy-VCH, Germany***) **2011**, *17*,2742. Available from: http://onlinelibrary.wiley.com/doi/10.1002/chem.201002745/abstract;jsessionid=2E8D840B117261B97A0D2A8DD88918F9.f03t02

36) Torigoe, H.; Rahman, S. M. A.; Takuma, H.; Sato, N.; Imanishi, T. Obika, S. Interrupted 2'- O ,4'- C -Aminomethylene Bridged Nucleic Acid Modification Enhances Pyrimidine Motif Triplex-Forming Ability and Nuclease Resistance Under Physiological Condition *Nucleosides, Nucleotides and Nucleic Acids (**Taylor and Francois, USA**)* **2011**, *30*, 63. Available from: http://www.tandfonline.com/doi/pdf/10.1080/15257770.2010.543118

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39) Obika, S., Rahman, S. M. A., Fujisaka, A., Kawada, Y., Baba, T., Imanishi, T. Bridged Nucleic Acids: Development, Synthesis, and Properties (Invited Review): *Heterocycles **(Japan)***. **2010**, 81, 1347-1393 (46 pages).

40) Rahman, S. M. A., Haitani, S., Imanishi, T. Obika, S. RNA interference with Bridged Nucleic Acids: *Biorg. Med. Chem. Lett (**Elscevier Science UK)***. **2010**, 18, 3474.

41) Umeda, R.; Miki, Y. Rahman, S. M. A.; Sonoda, M.; Tobe, Y.Formation of naphthodithiophene isomers by flash vacuum pyrolysis of 1,6-di(2-thienyl)-1,6 di-(3-thienyl)-1,5-hexadien-3-ynes. *Comptes Rendus Chimie **(Elsevier, France)*** **2009**, *12*, 378.

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44) Sasaki, K.; Rahman. S. M. A.; Obika, S.; Imanishi, T.; Torigoe, H. Promotion of triplex formation by 2'-O, 4-C, -Amino Methylene bridged nucleic acids. *Nucleic Acids Symp. Ser*. (**Oxford, UK**), **2008**, *52*, 419.

45) Obika, S., Rahman, S. M. A., et al. Synthesis and Properties of 3'-amino-2',4'-BNA: A Bridged Nucleic Acid with N3, P5 phosphoramidate *Biorg. Med. Chem. Lett.**(Elscevier Science, UK)*** **2008**, *16*, 9230.

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(K) REFERENCES:

1) Prof. Dr. A. K. Azad Chowdhury, Professor Emeritus, Department of Clinical Pharmacy and Pharmacology, University of Dhaka. Former Chairman, UGC, and Former Vice-Chancellor, University of Dhaka. Phone:

2) Prof. Dr. Nazmul Quis, Chairman, Department of Clinical Pharmacy and Pharmacology, Faculty of Pharmacy, University of Dhaka, Dhaka 1000; Phone: 880 2 9661900/8155 (ext), , 9127518 (residence).

2) Prof. Dr. Satoshi Obika, Graduate School of Pharmaceutical Sciences, Osaka University, Suita, Japan. Phone: +81 6 6879 8202. email: obika@phs.osaka-u.ac.jp

Signature

(Dr. S. M. Abdur Rahman)