CURRICULUM VITAE

Name and full correspondence address

Dr. Jagannath Bhuyan Associate Professor Department of Chemistry Bhattadev University, Bajali, Pathsala Assam, Pin-781325, India Email: jbhuyan7@gmail.com, che.jagannath@bhattadevuniversity.ac.in



Academic Qualification

- Ph. D.: Year of award: September- 2012
 - **Department of Chemistry, Indian Institute of Technology Kanpur**, Kanpur, India. Title of the thesis: Synthetic Leaf: Modeling Chlorophyll Bicarbonate Adduct for Photosystem I and Oxidative Degradation of Iron and Zinc Porphyrin Thesis supervisor: Prof. Sabyasachi Sarkar.
- M. Sc.: Department of Chemistry, Gauhati University, Guwahati-16, India
- B. Sc.: Arya Vidyapeeth College, Gauhati University, Guwahati, Assam, India.

Post-doctoral research

 NSF Post-doctoral Research Associate (with Prof. Patrick J. Farmer)
 Department of Chemistry and Biochemistry, Baylor University, Waco, Texas-76706, United States of America

Duration: 2 years, 26th November 2012 to 25th December 2014

Work Experience (in chronological order).

S.No.	Positions held	Name of the Institute	From	То
1	Associate Professor	Department of Chemistry, Bhattadev University, Bajali, Pathsala, Assam, India	01/02/2024	continuing
2	Assistant Professor	Department of Chemistry, North Eastern Regional Institute of Science and Technology (NERIST, Under Ministry of Education, Govt. of India), Nirjuli, Arunachal Pradesh-791109, India	13 th January, 2015	31/01/2024
3	Post-doctoral Research Associate	Baylor University, Waco, Texas, United States of America	26/11/2012	25/11/2014

4	Junior Technical	IIT Guwahati, Guwahati, Assam,	2005	2007
	Superintendent	India		

Awards and/or other recognitions received:

- (a) INSA History of Science Research Grant -2024
- (b) Mathematical Research Impact Centric Support (MATRICS) grant from SERB-DST, New Delhi, in the year 2020-2023
- (c) SERB, DST start-up grant YSS/2015/00394 from (2015-18)
- (d) The article: "Histamine-bound magnesium porphyrins: diverse coordination modes, inhibitory role in photodegradation of chlorophyll a and antioxidant activity" was recognized as a quarterly HOT article, Dalton transaction, Royal Society of Chemistry, Dalton Transactions, 2023, 52, 11085
- (e) Recognized as the top downloaded author in Chemistry Select, Chemistry Europe. (Quest for Zinc Methoxyisoporphyrin Molecules: Experimental and Theoretical Studies, Chemistry Select, 2022, 7, e202103777)
- (f) Travel award from Council of Scientific and Industrial Research (CSIR), New Delhi to participate in the Gordon Research Conference on Renewable Energy: Solar Fuels in Italy in 2012
- (g) Travel award from DST, New Delhi to participate in the Gordon Research Conference on Renewable Energy: Solar Fuels in Italy in 2012
- (h) Post-doctoral fellowship from McGill University, Montreal, Canada (did not join).
- (i) Post-doctoral research fellowship from the Institute of Chemistry, Academia Sinica, Taiwan (did not join).
- (j) The paper "A magnesium porphyrin bicarbonate complex with CO₂ modulated photosystem I action" was recognized as a **Very Important Paper** by the journal *Angew. Chem. Int. Ed., Angew. 2011*
- (k) Qualified National Eligibility Test (NET) for Junior Research Fellowship (JRF) in the subject of Chemical Sciences in June 2007
- (1) Qualified Graduate Aptitude Test for Engineering (GATE) in Chemical Sciences in Feb-2006

Research Areas of Interest:

- Synthetic inorganic chemistry: Synthesis of novel tetrapyrrolic compounds like isoporphyrins for applications in different fields such as near-infrared dyes, novel biomimetic catalysts for organic transformation reactions, etc.
- Synthetic leaf: Carbon dioxide reduction using conjugates of metalloporphyrin and model complex of W-enzyme Formate Dehydrogenase
- Bio-inorganic chemistry: Activation of small molecule chemistry like nitric oxide, carbon dioxide, carbon monoxide
- Theoretical calculation: Theoretical calculations at the DFT level to understand the electronic, optical, redox and vibrational properties of novel tetra-pyrrolic complexes and their role in biological systems.

• Nano-Chemistry: To understand the structure of synthesized novel complexes at the level on surfaces and their self–assembled properties

Thesis/research work Supervision at NERIST, Itanagar:

- Post-doctoral student: Mentored one National Post-doctoral Fellow of SERB, DST, New Delhi
- PhD degree awarded: 03; ongoing-04
- M.Sc. thesis supervised: 13

Sponsored Research Project:

- 1. Title: Metallo-isoporphyrin: A biomimetic catalyst and a promising photosensitizer in photodynamic therapy, Science and Engineering Research Board (SERB), New Delhi, Govt. of India, Year 2015-2018, Rs. 24,88,000/-
- 2. Title: Density functional theory (DFT) investigation of metalloisoporphyrins as near infra-red dyes and photosensitizers for photodynamic therapy and iron(III) isoporphyrins as alternatives to iron(IV)-oxo porphyrin π -cation radical, Science and Engineering Research Board (SERB), New Delhi, Govt. of India, Year 2020-2023, Rs. 6,60,000/-
- **3.** Title: A quest to understand the science of indigenous technologies like making cementing materials, bricks, and gunpowder of the Ahom dynasty, **Indian National Science Academy**, **New Delhi**, 2024-2025

Courses Taught:

I have been teaching a variety of undergraduate and post-graduate core/elective courses at the Department of Chemistry, Bhattadev University

- CH105 Spectroscopy 1
- CH201 Inorganic Chemistry 2
- CH302 Modern Methods of Analysis
- CH206 Laboratory Course II
- CHE1104C Chemistry-I Taught at NERIST, Nirjuli (2015-2024)
- CY 3201 Environmental Chemistry (UG/PG level)
- CY3202 Engineering chemistry IA (UG level)
- CY7101 Inorganic chemistry-I (PG)
- CY 7151 Inorganic chemistry practical, laboratory work-I (PG)
- CY 7152 Inorganic chemistry practical, laboratory work-II (PG)
- CY 8003 Applications of Spectroscopy in Inorganic Chemistry (PG)
- CY8151 Inorganic chemistry specialization, laboratory work (PG)
- CY8016 Special topic in inorganic chemistry (PG)
- CY9002 Physical Methods in Chemistry (Ph. D)

Invited Lectures Delivered:

1. **Porphyrin-isoporphyrin tautomerism: Quest for new photosensitizers for photodynamic therapy (PDT) and biomimetic catalysts,** Invited lecture in the symposium "Chemical Education

in Self Reliance: A Global Perspective" in collaboration with the Royal Society of Chemistry (RSC) held on 23 June 2022 at Rajiv Gandhi University, Rono-Hills, Arunachal Pradesh

- 2. **Metalloisoporphyrins: The quest for new photosensitizers and biomimetic catalyst,** Invited lecture in National Conference on Advances in Sustainable Chemistry and Material Science (ASCMS) at Department of Chemistry, Bodoland University on 30th April 2022.
- 3. **Isoporphyrin, the tautomer of porphyrin: synthesis to applications,** Invited lecture in International E-Conference on Current Trends in Chemical Research on August 22, 2020, organized by Dept. of Chemistry in association with Internal Quality Assurance Cell (IQAC), Nowgong College, Nagaon, Assam
- 4. At UGC-SAP National Seminar "Emerging Trends in Chemical Sciences 2015" at Department of Chemistry, Gauhati University, Guwahati, Assam on November 05-06, 2015.
- 5. At the 5th Symposium on Advanced Biological Inorganic Chemistry (SABIC), 7th-11th January 2017, Kolkata, India, organized by the Tata Institute of Fundamental Research (TIFR) and Indian Association for the Cultivation of Science (IACS)

Membership in professional Bodies:

(i) Life Member, Chemical Research Society of India (CRSI), LM 2939

(ii) Life member, Assam Science Society, Guwahati, Pichala Anchalik Branch

List of full publications (Journal paper only):

1. Pyrazine bound, zinc 5,10,15,20-tetrakis(4-chlorophenyl)porphyrin: Synthesis, crystal structure and computational studies

A. K. Choudhury, H. Yamang, N. G. Singh, **J. Bhuyan** Inorganica Chimica Acta, Volume 574,2025,122343,

2. Zinc isoporphyrin from [Zn(4-Cl)TPP]: Synthesis, characterization, density functional theory and molecular docking studies

H. Yamang, A. K. Choudhury, D. Bora, B. Kalita, **J. Bhuyan** Inorganica Chimica Acta,Volume 573,2024,122333

- Synthesis, crystal structure and computational studies of water and pyrazine-bound magnesium
 5, 10, 15, 20-tetrakis (3, 5-dimethoxyphenyl) porphyrin
 BP Borah, AK Choudhury, S Majumder, J Bhuyan, Journal of Molecular Structure, 2024, 137852
- 4. Quest for iron(III) isoporphyrins: synthesis, characterization, reactivity and theoretical studies

H Yamang, **J. Bhuyan** *Journal of Molecular Structure*, **2023**, 1296, 136754

5. Histamine-bound magnesium porphyrins: diverse coordination modes, inhibitory role in photodegradation of chlorophyll a and antioxidant activity
 A. K. Choudhury, R. Sarkar, J. Bhuyan

Dalton Transactions, 2023, 52, 11085 – 11095

- 6. Synthesis, crystal structure, computational studies and antioxidant properties of dimethylformamide-bound magnesium tetraphenylporphyrin,
 - A. K. Choudhury, B. P. Borah, K D Borah, J. Bhuyan J. Coord. Chem. 2023, 76, 902-916
- 7. Pyrazine-bridged cobalt porphyrin: Characterization, unique crystal structure and computational studies

B. P Borah, S. Majumder, P.P. Nath, A K Choudhury, J. Bhuyan *Journal of Molecular Structure*, 2023, 1275, 134557

8. A new strategy for the synthesis of *oxo*-rhenium(V) porphyrins: Synthesis, characterization, theoretical calculations and electrochemical aspects

S. Majumder, J. Bhuyan Inorganica Chimica Acta, 2023, 547, 121344

9. Unique magnesium porphyrinate structure: Synthesis, characterization, and theoretical study

NG Singh, KD Borah, J Bhuyan Inorganica Chimica Acta, **2022**, 121145

10. Structural control in the nanoassembly of the tungsten and molybdenum dithiolene complex analog

J Bhuyan, B Pakhira, A Begum, S Sarkar, KM Tripathi *React. Chem. Eng.*, **2022**, 2231-2239

- Quest for Zinc Methoxyisoporphyrin Molecules: Experimental and Theoretical Studies, K. D. Borah, H. Yamang, N. G. Singh, J. Bhuyan Chemistry select 2022, 7, e202103777
- 12. The quest for a better understanding of ethanol coordination to magnesium and zinc porphyrin: A combined experimental and theoretical study
 B. P. Borah, S. Majumder, K. D. Borah, J. Bhuyan*
 J. Mol. Str., 2021, 129646
- 13. Rhenium in the core of porphyrin and rhenium bound to the periphery of porphyrin: synthesis and applications
 S. Majumder, B. P. Borah, J. Bhuyan*
 Dalton Trans., 2020, 49, 8419-8432 https://doi.org/10.1039/D0DT00813C
- 14. Ethanol coordinated zinc trimethoxyphenylporphyrin: Structure, theoretical studies and formation of isoporphyrin

N. G. Singh, K. D. Borah, S. Majumder, and J. Bhuyan* Journal of Molecular Structure, Elsevier, **2020**, 1200, 127116

- **15. Methoxy-isoporphyrins of water-soluble porphyrins: Synthesis, characterization and electrochemical properties** K.D. Borah and J. Bhuyan*, *J. Coord. Chem*, **2019**, 72, 2251-2260
- 16. Influence of position of methoxy groups in Znmethoxyphenyl porphyrins B.P. Borah,and J. <u>Bhuyan*</u> J. Chem. Sci., 2018, 130-138 (ISSN: 0974-3626)

17. Magnesium porphyrins with relevance to chlorophylls

K.D. Borah and <u>J. Bhuyan</u>* *Dalton Trans.*, **2017**, 46, 6497-6509, 10.1039/C7DT00823F

18. Magnesium Trimethoxyphenylporphyrin Chain Controls Energy Dissipation in the presence of Cholesterol

K.D. Borah, N.G. Singh and <u>J. Bhuyan*</u> J. Chem. Sc.i, **2017**, 129, 449–455, doi:10.1007/s12039-017-1251-0

19. Nucleophilic ring-opening of iron(III)-hydroxyisoporphyrin

J. Bhuyan*

Dalton Trans., 2016, 45, 2694-2699.

20. Large-scale synthesis of soluble tunable-photoluminescence graphitic hollow carbon nanorods for selective fluorescent detection of DNA

K.M. Tripathi, A.K. Sonker, A. Bhati, J. Bhuyan, A. Singh, A. Singh, S Sarkar and S.K. Sonkar, *New J. Chem.*, **2016**, 40, 1571-1579.

21. Metalloisoporphyrins: from synthesis to applications

J. Bhuyan*

Dalton Transactions, 2015, 44, 15742-15756.

22. NO₂-Induced synthesis of nitrato-iron(III)porphyrin with diverse coordination mode and the formation of isoporphyrin J. Bhuyan, and S. Sarkar

J. Chem. Sci., 2013, 125, 707–714.

23. Nitrous acid mediated synthesis of iron nitrosyl porphyrin: pH dependent nitric oxide release

<u>J. Bhuyan</u>, and S. Sarkar *Chem. Asian J.*, **2012**, 7, 2690-2695.

24. A magnesium porphyrin bicarbonate complex with CO₂modulated photosystem I action <u>J. Bhuyan</u>, R. Sarkar and S. Sarkar

Angew. Chem. Int. Ed., 2011, 50, 10603-10607, (Very Important Paper).

25. Self-assembly of magnesium and zinc trimethoxyphenylporphyrin polymer as nanospheres and nanorods

<u>J. Bhuyan</u>, and S. Sarkar *Cryst. Growth Des.*, **2011**, 11, 5410–5414

- **26.** Oxidative degradation of zinc porphyrin in comparison with its iron analogue <u>J. Bhuyan</u>, and S. Sarkar *Chem. Eur. J.*, **2010**, 16, 10649 10652
- 27. NO₂° Mediated *meso*-hydroxylation of Fe(III) porphyrin Abhilash G.J., <u>J. Bhuyan</u>, P. Singh, S. Maji, K Pal and S Sarkar *Inorg. Chem.*, 2009, 48, 1790-1792

Book Chapters

1. Bioinspired Models of Mo and W-Enzymes in CO₂ Reduction

<u>Jagannath Bhuyan</u> and Sabyasachi Sarkar Chapter in Volume 5, Bioinspired Chemistry: From Enzymes to Synthetic Models, Edited By: Marius Réglier. Series on Chemistry, Energy and the Environment, World Scientific. Publishing Co. Pte. Ltd. 5- Toh-Tuck Link, Singapore- 596224, **2019**, ISBN 9789813274433

2. Synthetic leaf and ubiquitous roles of carbon dioxide in photosynthesis

Jagannath Bhuyan*

Article in the book "Reflection", published by Purbayon Publication, Guwahati on behalf of OP-118, UGC-HRDC, Gauhati University, Guwahati, **2019**, ISBN 978-93-88593-16-8

3. Metalloporphyrins: Promising Catalysts for Carbon Dioxide Reduction and Azo-dye degradation

B P Borah, S Majumder and J Bhuyan Article in the Book Environmental Issues and Sustainable Development, Published by Lakhimpur Girls College, 2022

Paper presented at national/international conferences

- 1. Invited lecture delivered on the topic "Porphyrin-isoporphyrin tautomerism: Quest for new photosensitizers for photodynamic therapy (PDT) and biomimetic catalysts", in the symposium "Chemical Education in Self Reliance: A Global Perspective" in collaboration with the Royal Society of Chemistry (RSC) held on 23 June 2022 at Rajiv Gandhi University, Rono-Hills, Arunachal Pradesh
- 2. Invited lecture delivered on the topic "Metalloisoporphyrins: The quest for new photosensitizers and biomimetic catalyst", in National Conference on Advances in Sustainable Chemistry and Material Science (ASCMS) at Department of Chemistry, Bodoland University on 30th April 2022
- **3.** Invited lecture delivered on the topic "Isoporphyrin, the tautomer of porphyrin: synthesis to applications", in International E-Conference on Current Trends in Chemical Research on August 22, 2020, organized by Dept. of Chemistry in association with Internal Quality Assurance Cell (IQAC), Nowgong College.
- **4.** Paper presented on the topic "Novel zinc-isoporphyrins of water-soluble porphyrins: Synthesis, properties and theoretical studies" in "International e-Poster Conference on Current Outlook in Material Science and Engineering (COMSE-2k20)" on 15-16th May 2020.
- "Metallo-isoporphyrin: synthesis, biological relevance and prospective application" at International Conference on "Emerging Trends in Chemical Sciences" during 26-28 February 2018 at Department of Chemistry, Dibrugarh University, Assam.
- 6. "Magnesium Porphyrin Chain Controls Energy Dissipation In The Presence Of Lipids" at 20th CRSI National Symposiums in Chemistry, 2nd to 5th February, 2017 Organized by Gauhati University, Guwahati, Assam, India.
- 7. "Metalloisoporphyrins: Synthesis, properties and potential applications" at 5th Symposium on Advanced Biological Inorganic Chemistry (SABIC), 7th-11th January, 2017, Kolkata, India, organized by Tata Institute of Fundamental Research (TIFR) and Indian Association for the Cultivation of Science (IACS).
- Iron(III)-hydroxyisoporphyrin: NO⁺ -Induced Synthesis and Nucleophile mediated Ring-opening at UGC-SAP National Seminar on "Emerging Trends in Chemical Sciences 2015" organized by Gauhati University, Guwahati, Assam on November 05-06, 2015
- 9. "Hydroxy-isoporphyrin mediated generation of HNO" at 69th Southwest Regional Meeting of American Chemical Society, Waco Convention Centre, Texas, USA.

- "Light-Induced Hydrogen Evolution and CO₂ Reduction to Formate using Zinc Porphyrin" at Renewable Energy: Solar Fuels" by Gordon Research Conference in Renaissance Tuscany II Ciocco Resort, Lucca, (Barga), Italy, May 13-18, 2012.
- "Unusually Bent Iron Nitrosyl Porphyrin: pH Dependent Nitric Oxide, Nitroxyl Anion Release" at 3rd Asian Conference on Coordination Chemistry (ACCC-3) New Delhi, October 17-20, 2011 Organized by IIT Kanpur and IIT Delhi, India.
- 12. "Oxidative degradation of zinc porphyrin and heme degradation" at Symposium on Advanced Biological Inorganic Chemistry (SABIC-2009) November 4-7, 2009, Organized by Department of Chemical Sciences, Tata Institute of Fundamental Research (TIFR) Mumbai, India.
- **13.** *"meso-*Hydroxylation of Fe(III) Porphyrin" at **CHEMFEST**, Department of Chemistry, IIT Kanpur, April 2008.
- 14. "Physico-chemical characteristics of pond-waters of Lakhimpur district of Assam" at 50th Annual Technical Session and National Conference on Current Trends of Research in Science and technology, Assam Science Society, Organized by Gauhati University, Guwahati-14, Assam, India.

Workshop/ conference attended:

- 1. Participated in the short term two-week training programme on "Induction training" organized by the National Institute of Technical Teachers Training and Research (NITTTR) Kolkata held from 11.09.20115 to 20.09.2015
- 2. Participated in the 4th Indest user convention (E-journal user training workshop) on 22-23rd August and 31st October 2015 organized by the AICTE-INDEST User committee, North Eastern Regional Institute of Science and Technology, Nirjuli.
- 3. Participated in the 8th Seminar on "Hydrocarbon Industry Growth: Prospect and Challenges in North East" conducted at Digboi club premises, Digboi on 12th and 13th May 2016 organized by Petrotech, New Delhi.
- 4. Participated in the "Pedagogy Training for Outcome Based Education" on 16th -17th March 2017 organized by the National Institute of Technical Teachers' Training and Research, Bhopal
- Successfully completed a one-week short term training programme on "Leadership and team building in academia" organized by the National Institute of Technical Teachers Training and Research (NITTTR) Kolkata at NERIST held from 30/10/2017 to 3/11/2017
- 6. Participated and obtained "A" Grade in a 4-week UGC-sponsored orientation Programme (OP-118) held from 15th December 2018 to 11th January 2019 at the Human Resource Development Centre, Gauhati University, Guwahati
- Participated two-week All India Council for Technical Education (AICTE) sponsored Faculty Development Programme (FDP) on 'Impact of Climate Change on Water Resources' held from October 14 - 25, 2019 organized by the Department of Agricultural Engineering, NERIST
- Participated in the one-week Faculty Development Programme on "ICT tools for teaching, learning process and institutes" jointly organized by Electronics and ICT Academics at NERIST, Nirjuli, Arunachal Pradesh held from 13th -17th January 2019.
- 9. Participated in the one-week Online Faculty Development Programme on "Energy and Environment: Conversion, Generation, Storage and Efficient Utilization" from

24/08/2020 to 28/08/2020, organized by the Department of Electrical Engineering and Civil Engineering, North Eastern Regional Institute of Science & Technology, Nirjuli, Arunachal Pradesh.

- 10. Participated in a webinar series on intellectual property rights from 3/8/2020 to 4/8/2020 at NERIST
- 11. Participated in the one-week Online Faculty Development Programme on "Advanced Engineering Optimization through Artificial Intelligence" from July 12-17, 2021 Sponsored by All India Council for Technical Education (AICTE), organized by the Department of Engineering, North Eastern Regional Institute of Science & Technology, Nirjuli, Arunachal Pradesh
- 12. Successfully completed a two-week refresher course in Chemistry, organized by the Human Resource Development Centre (UGC sponsored), DDU Gorakhpur University, UP 11th to 24th September 2021
- Successfully completed two weeks of "Online Training Programme on Digital Tools for Writing, Authoring and Reviewing Manuscripts" jointly organized by Electronics & ICT Academies IIT Guwahati from 12th to 23rd July 2021.
- 14. Successfully completed the 5-day online FDP on the theme "Inculcating Universal Human Values in Technical Education" organized by the All India Council for Technical Education(AICTE) from 4 October 2021 to 8 October 2021.
- 15. Participated in the Online Faculty Development Programme on "Research Methodology and Online Teaching" organized by E&ICT Academy IIT Guwahati held from 17 22 January 2022
- 16. Participated in an online IP Awareness/Training program under the National Intellectual Awareness Mission on March 05, 2022.
- 17. Completed the One Week Faculty Development Programme on Leadership & People Management organized by NITTTR Kolkata from 9th October to 13th October 2023 successfully.
- 18. Participated in the face-to-face training program on "Faculty Development Programme on Disaster Management" at NERIST from 22/2/2023 to 24/2/2023 organized by the National Institute of Disaster Management, Govt of India
- 19. Participated in the seminar-cum workshop on "Recent trends on Natural resources using Advanced Chromatographic and Mass-spectrometry Techniques" organized jointly by CSIR-NEIST Branch Naharlagun and Shimdazu-Spinco from 28th to 29th June, 2023.

Administrative/Academic responsibilities at Bhattadev University, NERIST and other institutions:

- ✓ Associate Dean, Research and Development, Bhattadev University, Bajali, Pathsala, Assam, April2024-till date
- ✓ Coordinator, Central Research Facility, NERIST January 2016- 29/01/2024
- ✓ Member, NERIST Entrance Examination (2019-2020)
- ✓ In-charge, Instrumentation Laboratory, Department of Chemistry, NERIST, April 2015-January 2024 (HOD/CH/93/12 dated 19.03.2015)
- ✓ In-charge, PG Lab-1, Department of Chemistry, NERIST, April 2015-2020 (HOD/CH/93/12 dated 19.03.2015)
- ✓ Convener, Departmental Post Graduate Committee, Department of Chemistry, 2015-18, (No. Acad/DPGC/2011/364 dated 13.05.2015)

- ✓ Programme Officer, NERIST NSS Unit, Year 2015-2016 (No. NSS/1/2015-16 dated 20.08.2015).
- ✓ Member, Institute website maintenance committee, February 2016-continuing, (No. ETCell/Webdata/1/1/2016 dated 18th February 2016)
- ✓ Member, Automation committee, 2016
- ✓ Chairman, physical verification committee of Hostel D for the year 2014-2015 (No. CTL/ST/PV/2005-06/V-1 dated 30.04.2015)
- ✓ Member, Editorial Board NERIST, Annual Report 2017-18 (No. CON-I/2004/AR/Vol.III/2017-18 dated 4/12/2018
- ✓ Member, Nerist Entrance Examination Committee for the year 2019-2020 (No. Est.111/02/05/Vol-V Dated 30/11/2018)
- ✓ External Member, Board of Studies, North Lakhimpur College (Autonomous)

References:

1. **Prof. Sabyasachi Sarkar Former Senior Professor and Head** Dept. of Chemistry, IIT Kanpur Honorary Emeritus Professor Department of Chemistry Indian Institute of Engineering Science and Technology, Shibpur, Botanic Garden, Howrah 711103, India Tel: +91-3326680521 Ext-437 Mobile No. 09830562156/8902499683 Email: protozyme@gmail.com, abya@iitk.ac.in

2. Prof. Patrick J. Farmer

Professor, Department of Chemist and Biochemistry Baylor University Waco, Texas, USA- 76798 Tel: (254) 710-2746, Email: <u>Patrick Farmer@baylor.edu</u>