Curriculum Vitae of Dr. Bula Singh



Name: Dr. Bula Singh
Designation: Associate Professor
Date of Joining: 23.09.2007
Department: Department of Chemistry
Visva-Bharati
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Details of Academic Qualification:

B. Sc. (Hons.)	Chemistry Honours, Visva-Bharati, Santiniketan-731235	1996
M. Sc.	Physical Chemistry, Visva-Bharati, Santiniketan-731235	1998
Ph. D.	Thesis title: "Kinetics and mechanistic studies of some metal bound radicals" Jadavpur university , Kolkata-	2014

Teaching Experience: 17 Yrs (UG & PG)

Assistant and Associate Professor of Physical Chemistry, Visva-Bharati (23.09.2007-present)

Research Interest:

- Study the kinetics and reaction mechanism of different redox reaction.
- Synthesis of metal bound radical complex and study their activity.
- Synthesis of metal nano particle and study their catalytic activity.
- Repurposing the old drug by making metal -drug new complex.
- Synthesis of small molecule and study their anticancer property.

Research projects Completed:

S. No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency
1.	Metal-drug complexes: synthesis, characterization and	28.41	July 2018-June 2021	Principal Investigator: Dr. Bula Singh	SERB (EMEQ)

	application, an integral approach				
2.	Unraveling the potential therapeutic impact of biguanide derivatives on egfrher 2-enriched breast cancer with special emphasis on tert - mediated mitochondrial dynamics	21.00	2024-2026	Co-Principal Investigator: Dr. Bula Singh	CSIR(ASPIRE)

Doctoral Theses Guided:

- Awarded: 2 (Two)
- Present PhD students: 2 (two)

Publications:

Sl. No	Types	No.	Publication type	
1.	Research articles	40		40 International journal

Selected Recent Publications: (Last 10 Years)

[1] Kinetics of palladium nano-particles catalyzed reduction of Methylene Green by hydrazine: role of induction period in determining mechanistic pathway

Ranendu Sekhar Das, **Bula Singh**, Arabinda Mandal, Rupendranath Banerjee and Subrata Mukhopadhyay, Inorganica Chimica Acta, 2015, 428, 185–192.

[2]Kinetic and mechanistic study of the reactions of 2-mercaptoethanol and thioglycolic acid with Co(III)-bound superoxide complex .Arabinda Mandal, Ranendu Sekhar Das, **Bula Singh**, Rupendranath Banerjee, Subrata Mukhopadhay,Canadian Journal of Chemistry, 2015, 93, 1276–1282,

[3] Kinetics and mechanism of oxidation of $S_2O_3^{2-}$ by a Co-bound μ-amido-μ-superoxo complex **Bula Singh**, Ranendu Sekhar Das, Rupendranath Banerjee and Subrata Mukhopadhyay, International Journal of Chemical Kinetics, 2016, 48 (2), 88–97.

[4]Penicillamine and Captopril: Mechanistic Exploration of Defensive Actions of Thiol Drugs Against a Metal Bound-Superoxo Complex**.**Arabinda Mandal, Ranendu Sekhar Das, **Bula Singh**, Rupendranath Banerjee and Subrata Mukhopadhay, Journal of Coordination Chemistry, 2017. Volume 70, issue-10, 1723–1738.

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[5]Spectroscopic and theoretical studies of charge-transfer interaction of 1-(2-pyridylazo)-2 napthol with nitroaromatics. Animesh Karmakar, **Bula Singh,** Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2017, 179, 110–119.

[6] Spectroscopic, electrochemical and molecular docking study of the binding interaction of a small molecule 5H-naptho[2,1-f][1,2] oxathieaphine 2,2-dioxide with calf thymus DNA.Abhijit Mukherjee, Shovan Mondal, **Bula Singh**,International Journal of Biological Macromolecules,2017, 101, 527–535**.**

[7] Charge-transfer interaction of 4-(2-pyridylazo)resorcinol with nitroaromatics: Insights from experimental and theoretical results.Animesh Karmakar, Bula Singh, Journal of Molecular Liquids, 2017, 236, 135–143.

[8] Binding interaction of pharmaceutical drug captopril with calf thymus DNA: a multispectroscopic and molecular docking study**.**Abhijit Mukherjee, **Bula Singh**, Journal of Luminescence, 2017, 190, 319–327.

[9] Charge-transfer complex of 1-(2-Thiazolylazo)-2-naphthol with aromatic nitro compounds: Experimental and theoretical studies.A Karmakar, **Bula Singh**, Journal of Molecular Liquids, 2017, 247, 425-433.

[10] Investigation of charge-transfer hydrogen bonding interaction of 1-(2-pyridylazo)-2-naphthol (PAN) and 4-(2-Pyridylazo) resorcinol (PAR) with chloranilic acid through experimental and DFT studies.A Karmakar, **Bula Singh**, Journal of Molecular Structure, 2018, 1164, 404-411.

[11] Synthesis, characterization and unravelling the molecular interaction of new bioactive 4-hydroxycoumarin derivative with biopolymer: Insights from spectroscopic and theoretical aspects.A Mukherjee, S Ghosh, R Sarkar, S Samanta, S Ghosh, M Pal, A Majee, Sukanta Kumar Sen, **Bula Singh**,Journal of Photochemistry and Photobiology B: Biology,2018, 189, 124-137.

[12] Comparative studies on the oxidative dechlorination of chlorophenols by a superoxide complex, **Bula Singh**, RS Das, A Mandal, Transition Metal Chemistry, 2019, 44 (1), 99-105.

[13] Study of hydrogen bonding interaction of acridine orange with different acceptor molecules by spectroscopic, theoretical, and antimicrobial studies. A Karmakar, S Banerjee, **Bula Singh**, NC Mandal, Journal of Molecular Structure,2019, 1177, 418-429.

[14] Spectroscopic analysis and theoretical investigation of hydrogen bonding interaction of quercetin with different acceptor molecules, A Karmakar, **Bula Singh**, Journal of Molecular Structure , 2019, 1180, 698-707.

[15] Deciphering the effective sequestration of DNA bounded bioactive small molecule Safranin-O by non-ionic surfactant TX-114 and diminution its cytotoxicity, A Mukherjee, S Ghosh, M Pal, **Bula Singh**, Journal of Molecular Liquids, 2019, 289, 111116.

[16] Insight on nano-platinum-catalyzed dehydrogenation of quercetin in presence of peroxide.RS Das, **Bula Singh**, Journal of Nanoparticle Research, 2019, 21 (12), 273

[17] Studies on the oxidative degradation of paracetamol by a μ-oxo-diiron (III) complex.**Bula Singh**, RS Das, Canadian Journal of Chemistry, 2020, 98 (2), 98-105

[18] Synthesis, spectroscopic, theoretical and antimicrobial studies on molecular charge-transfer complex of 4-(2-thiazolylazo) resorcinol (TAR) with 3, 5-dinitrosalicylic acid, picric acid and chloronilic acid.A Karmakar, P Bandyopadhyay, S Banerjee, NC Mandal, **Bula Singh**, Journal of Molecular Liquids, 2020, 299, 112217.

[19] Mixed anionic-nonionic micelle catalysed oxidation of aliphatic alcohol in aqueous medium A. Acharjee, A. Rakshit, S. Chowdhury, M.A. Ali, **Bula Singh**, B Saha,Journal of Molecular Liquids, 2020, 303, 112655.

[20] Molecular recognition of synthesized halogenated chalcone by calf thymus DNA through multispectroscopic studies and analysis the anti-cancer, anti-bacterial activity of the compounds.A

Mukherjee, S Ghosh, S Ghosh, S Mahato, M Pal, SK Sen, A Majee, **Bula Singh**, Journal of Molecular Liquids,2021, 337, 116504.

[21] Kinetic insights on the oxidation of acetaminophen and caffeine by a Mn (IV) 3 complex.**Bula Singh**, RS Das, Transition Metal Chemistry,2021, 46 (7), 565-573.

[22] PCET to bound-superoxide by NADH and NADHX in aqueous-acid media: a kinetic inspection ,**Bula Singh**, RS Das. Journal of Chemical Sciences ,2021, 133 (4), 1-9

[23]Synthesis of Cu (II)-Caffeine Complex as potential therapeutic Agent: Studies on Antioxidant, anticancer and pharmacological activities, Tamosi Kisku, Keya Paul, **Bula Singh**, Salini Das, Sutapa Mukherjee, Anupam Kundu, Jnanendra Rath, Ranendu Sekhar ,Journal of Molecular Liquids, 2022,364Pages-119897.

[24] Mechanistic Approach to the Anti-Oxidant Activities of Metal-Associated Superoxide With Trolox, **Bula Singh**, Ranendu Sekhar Das,,Canadian Journal of Chemistry.2023,1-6.

[25] Refashioning of the drug-properties of fluoroquinolone through the synthesis of a levofloxacin-imidazole cobalt (II) complex and its interaction studies on with DNA and BSA biopolymers, antimicrobial and cytotoxic studies on breast breast cancer cell lines.
Bula Singh , Tamosi Kisku , Salini Das , Sutapa Mukherjee , Anupam Kundu , Jnanendra Rath[c], Ranendu Sekhar Das , International Journal of Biological Macromolecules,Volume 253, Part 8, 31 December 2023, 127636.

[26]Exploring the role of mixed micelles and promoters for alcohol oxidation: A green catalytic approach and insights into micellar chemistry R Sarkar, K Karmakar, SM Rahaman, S Kundu, A Pal, A Rakshit, B Singh, B.Saha.Journal of Molecular Liquids 395, 123847.

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