



ENLIGHTENMENT TO PERFECTION

UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.

Department of Chemistry

Print



Dr. Sajal Das

M.Sc. Ph.D., POSTDOC

Associate Professor

Editorial Board Member: Editorial Board Member of American Journal of Heterocyclic Chemistry, Editorial Board Member of Journal of Medicinal Chemistry & Studies.

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Subject Specialization: Organic Chemistry

Areas of Research Interest: Synthetic Organic Chemistry

No. of Ph.D. Students: (a) Supervised: 04 (b) Ongoing: 06 .

No. of M.Phil. students: (a) Supervised: Nil (b) Ongoing: Nil .

No. of Publications: (a) Scientific Papers: 33

Previous Positions:

- May 2004 to May 2008: Research Fellow (CSIR-NET-JRF/SRF) North Bengal University, Darjeeling, India.
- June 2008 to June 2009: Post-Doctoral Fellow, Department of Organic Chemistry, Umeå University, Sweden.
- June 2008 to September 2018: Assistant Professor, Department of Chemistry, North Bengal University

Achievement and awards:

- Raman Post-Doctoral Fellowship: Awarded by UGC, New Delhi **2014-2015**.
- Young Scientist Award, DST FAST TRACK SCHEME in **2010**.
- Senior Research Fellowship: Awarded by CSIR New Delhi in **May 2006**
- Junior Research Fellowship: Awarded by CSIR New Delhi in **May 2004**

Research Experience:

- **May 2004 to April 2006:** Worked as a JRF (CSIR-NET-JRF).
- **May 2006 to May 2008:** Worked as SRF (CSIR-NET-SRF).
- **June 2008 to June 2009:** Worked as Post-Doctoral Fellow, Department of Organic Chemistry, Umeå University, Sweden.
- **June 2009 to onwards:** Assistant Professor, Department of Chemistry, North Bengal University, Darjeeling, India.
- **September 2014 to September 2015:** Post-Doctoral fellow at Department of Chemistry & Biochemistry, Queens College, City University of New York.

Project Details:

- Designing and synthesis of functionalized N-heterocycles (4-quinolone and imidazopyridine) and evaluation of their biocidal properties, Duration 3-years [August 2017-August 2020] (**Status: Ongoing**) Sponsored by SERB, New Delhi, Sanctioned amount 43.0 Lakhs INR.

- Synthesis of benzimidazole based NHC-metal complexes & their application in organic transformations, Duration 3-years [March 2012 to February 2015] (**Status: Completed**) Sponsored by CSIR-New Delhi, Sanctioned amount 20.0 Lakhs INR.
- Synthesis of potentially active & highly functionalized 4-quinolones, Duration 3-years [October-2010 to October-2013] (**Status: Completed**), Sponsored by *DST-INDIA*, New Delhi, Sanctioned amount 19.8 Lakhs INR.
- Investigations on Synthetic Organic Transformations: Application to C–C and C–N Bond Forming Processes, Duration 47 months [July 2004 to May 2008] (**Status: Completed**) Sponsored by CSIR-New Delhi, Sanctioned amount 6.4 Lakhs INR.

List of Ph.D. students:

Current Students:

- ✓ Ms. Seema Dwivedi
- ✓ Mr. Aritra K. Nandi
- ✓ Mr. Biswajit Mandol
- ✓ Mr. Gautam Chhetri
- ✓ Mr. Pranesh Rai
- ✓ Mr. Tapas Sarkar

Past Students:

- **Dr. Sumanta Gupta** (Thesis title: Synthesis of palladium-*N*-heterocyclic carbene complexes and their application in organic transformations) [Awarded in **July 2016**]
- **Dr. Prasanjit Ghosh** (Thesis title: Synthesis of functionalized 4-quinolones and their reactions: Approaches towards bioactive molecules) [Awarded in **November 2017**]
- **Dr. Barnali Kar** (Thesis title: Organic transformations in Microemulsion Medium) [Awarded in **January 2018**].
- **Dr. Bhaskar Ganguly** (Thesis title: Transition metal catalyzed organic transformations and application towards the synthesis of heterocyclic compounds) [Awarded in **July 2018**].

List of Selected Publications:

- Generation of ArS and ArSe substituted 4-quinolone derivatives using sodium Iodide as an Inducer, P. Ghosh, A. K. Nandi, G. Chhetri, **S. Das**, *J. Org. Chem.* **2018**, *83*, 12411-12419.
- Pd-NHC catalyzed Carbonylative Suzuki coupling reaction and its application towards the synthesis of biologically active 3-arylquinolin-4-(1*H*)-one and acridone scaffolds, P. Ghosh, B. Ganguly, **S. Das**, *Appl. Organomet. Chem.* **2017**, DOI: 10.1002/aoc.4173.
- A synthesis of biaryl ketones *via* C-S bond cleavage of thiol ester by a Cu/Ag salt; P. Ghosh, B. Ganguly, E. Perl, **S. Das**, *Tetrahedron Lett.* **2017**, *58*, 2751-2756.
- Auto-Tandem Palladium Catalysis: From Isoxazole to 2-Azafluorenone, **S. Das**, D. Hong, Z. Chen, W. H. Hersh, G. Subramaniam, Y. Chen, *Org. Lett.* **2015**, *17*, 5578-5581.
- Synthesis of 6-Aryl substituted 4-quinolones *via* Suzuki Cross Coupling, S. Gupta, P. Ghosh, S. Dwivedi, **S. Das**, *RSC Advances*, **2014**, *4*, 6254-6260.
- [A straight forward synthesis of 4-aryl substituted 2-quinolones *via* Heck reaction](#); S. Gupta, B. Ganguly, **S. Das**, *RSC Advances*, **2014**, *4*, 41148-41151.
- Benzimidazole based palladium-*N*-heterocyclic carbene: a useful catalyst for C-C cross coupling reaction at ambient condition, S. Gupta, B. Basu, **S. Das**, *Tetrahedron*, **2013**, *69*, 122-128.
- Complete Regioselective Addition of Grignard Reagents to Pyrazine *N*-oxides, Towards an Efficient Enantioselective Synthesis of Substituted Piperazines, H. Andersson, T. S. L. Banchelin, **S. Das**, M. Gustafsson, R. Olsson, F. Almqvist, *Org. Letters*, **2010**, *12*, 284-286.
- Efficient, Mild, and Completely Regioselective Synthesis of Substituted Pyridines, H. Andersson, T. S. L. Banchelin, **S. Das**, R. Olsson, F. Almqvist. *Chem. Commun.* **2010**, *42*, 3384-3386.
- Palladium Supported on Polyionic Resin as Efficient, Ligand-free & Recyclable Catalyst for Heck, Suzuki-Miyaura and Sonogashira Reactions, B. Basu, **S. Das**, P. Das, B. Mandal, F. Almqvist, D. Banerjee. *Synthesis* **2009**, 1137-1146.

Complete List of Publications:

- Generation of ArS and ArSe substituted 4-quinolone derivatives using sodium Iodide as an Inducer, P. Ghosh, A. K. Nandi, G. Chhetri, **S. Das**, *J. Org. Chem.* **2018**, *83*, 12411-12419.
- Ligand Free Approach for the Copper(II)-Mediated C-NH₂ Arylation of 4-Quinolone Derivatives Under Ambient Condition, P. Ghosh and **S. Das**, *ChemistrySelect*, **2018**, *3*, 8624-8627.

- Benzimidazole-based high temperature ionic liquid-in-oil microemulsion for regioselective nitration reaction, B. Kar, P. Ghosh, K. Kundu, S. Bardhan, B. K. Paul, **S. Das**, *J. Mol. Liq.* **2018**, 268, 122-130.
- Carbonylative Sonogashira annulation sequence: One-pot synthesis of 4-quinolone and 4*H*-chromen-4-one derivatives, P. Ghosh, A. K. Nandi, **S. Das**, *Tetrahedron Letters*, **2018**, 59, 2025-2029.
- Green procedure for highly efficient, rapid synthesis of imidazo[1,2-*a*]pyridine and its late stage functionalization, P. Ghosh, B. Ganguly, B. Kar, S. Dwivedi, S. Das, *Synth. Commun.* **2018**, 1076-1084.
- Pd-NHC catalyzed Carbonylative Suzuki coupling reaction and its application towards the synthesis of biologically active 3-arylquinolin-4-(1*H*)-one and acridone scaffolds, P. Ghosh, B. Ganguly, **S. Das**, *Appl. Organomet. Chem.* **2017**, DOI: 10.1002/aoc.4173.
- A synthesis of biaryl ketones via C-S bond cleavage of thiol ester by a Cu/Ag salt; P. Ghosh, B. Ganguly, E. Perl, **S. Das**, *Tetrahedron Lett.* **2017**, 58, 2751-2756.
- [A Fast and Additive Free C-C Homo/Cross-Coupling Reaction in Reverse Micelle: An Understanding of Role of Surfactant, Water Content and Base on the Product Yield and Reaction Site](#), B. Kar, S. Bardhan, P. Ghosh, B. Ganguly, K. Kundu, S. Sarkar, B. K. Paul, **S. Das**, *ChemistrySelect*, **2017**, 1079-1088.
- Microemulsion Mediated Organic Synthesis and the Possible Reaction Site, P. Ghosh, B. Kar, S. Bardhan, K. Kundu, S. K. Saha, B. K. Paul, **S. Das**, *J. Surface Sci. Technol.*, **2016**, 32, 8-16.
- Synergistic interactions of surfactant blends in aqueous medium are reciprocated in non-polar medium with improved efficacy as a nanoreactor, S. Bardhan, K. Kundu, B. Kar, G. Chakraborty, D. Ghosh, D. Sarkar, **S. Das**, S. Senapati, S. K. Saha, B. K. Paul, *RSC Advances*, **2016**, 6, 55104-55116.
- Auto-Tandem Palladium Catalysis: From Isoxazole to 2-Azafluorenone, **S. Das**, D. Hong, Z. Chen, W. H. Hersh, G. Subramaniam, Y. Chen, *Org. Lett.* **2015**, 17, 5578-5581.
- Regiocontrolled nitration of 4-quinolones at ambient conditions, S. Sarkar, P. Ghosh, A. Misra, **S. Das**, *Synth. Commun.*, **2015**, 45, 2386-2393.
- [Formation, Thermodynamic Properties, Microstructures and Antimicrobial Activity of Mixed Cationic/Non-ionic Surfactant Microemulsions with Isopropyl Myristate as Oil](#), S. Bardhan, K. Kundu, **S. Das**, M. Poddar, S. K. Saha, B. K. Paul, *J. Coll. Inter. Sci.* **2014**, 430, 129-139.
- N-Heterocyclic Carbenes (NHCs) in Asymmetric Organocatalysis, S. Dwivedi, S. Gupta, **S. Das**, *Current Organocatalysis*, **2014**, 1, 13-39.
- A green etiquette for Pd catalyzed ligand free homocoupling reaction of arylboronic acids at ambient conditions; S. Dwivedi, S. Bardhan, P. Ghosh, **S. Das**, *RSC Advances*, **2014**, 4, 41045-41050.
- [A straight forward synthesis of 4-aryl substituted 2-quinolones via Heck reaction](#); S. Gupta, B. Ganguly, **S. Das**, *RSC Advances*, **2014**, 4, 41148-41151.
- [Physicochemical studies of water-in-oil nonionic microemulsion in presence of benzimidazole-based ionic liquid and probing of microenvironment using model C-C cross coupling \(Heck\) reaction](#), B. Kar, S. Bardhan, K. Kundu, S. K. Saha, B. K. Paul, **S. Das**, *RSC Advances*, **2014**, 4, 21000-21009.
- Synthesis of 6-Aryl substituted 4-quinolones via Suzuki Cross Coupling, S. Gupta, P. Ghosh, S. Dwivedi, **S. Das**, *RSC Advances*, **2014**, 4, 6254-6260.
- Benzimidazole based palladium-N-heterocyclic carbene: a useful catalyst for C-C cross coupling reaction at ambient condition, S. Gupta, B. Basu, **S. Das**, *Tetrahedron*, **2013**, 69, 122-128.
- Electrical Conductances of 1-Butyl-3-propylimidazolium Bromide and 1-Butyl-3-propylbenzimidazolium Bromide in Water, Methanol, and Acetonitrile at (308, 313, and 318) K at 0.1 MPa, S. Gupta, A. Chatterjee, **S. Das**, B. Basu, B. Das, *J. Chem. Eng. Data*, **2013**, 58, 1-6.
- Synthesis of substituted 4-pyridones and 4-aminopyridinium salts via a one-pot pyridine synthesis, H. Andersson, **S. Das**, M. Gustafsson, R. Olsson, F. Almqvist, *Tetrahedron Letters*, **2010**, 51, 4218-4220.
- Efficient, Mild, and Completely Regioselective Synthesis of Substituted Pyridines, H. Andersson, T. S. L. Banchelin, **S. Das**, R. Olsson, F. Almqvist, *Chem. Commun.* **2010**, 42, 3384-3386.
- Complete Regioselective Addition of Grignard Reagents to Pyrazine N-oxides, Towards an Efficient Enantioselective Synthesis of Substituted Piperazines, H. Andersson, T. S. L. Banchelin, **S. Das**, M. Gustafsson, R. Olsson, F. Almqvist, *Org. Letters*, **2010**, 12, 284-286.
- Role of Catechol-violet for Cu(I)-Catalyzed Coupling of Aromatics Halides and Thiols, B. Basu, B. Mandal, **S. Das**, S. Kundu, *Tetrahedron Letters*, **2009**, 50, 5523-5528.
- Chemoselective reduction of aldehydes by ruthenium trichloride and resin-bound formates, B. Basu, B. Mandal, **S. Das**, P. Das, *Beilstein journal of organic chemistry* **2009**, (doi:10.3762/bjoc.4.53).
- Palladium Supported on Polyionic Resin as Efficient, Ligand-free & Recyclable Catalyst for Heck, Suzuki-Miyaura and Sonogashira Reactions, B. Basu, **S. Das**, P. Das, B. Mandal, F. Almqvist, D. Banerjee, *Synthesis* **2009**, 1137-1146.
- Role of copper in catalyzing aryl and heteroaryl-Nitrogen (or -oxygen) bond formation under ligand-free and solvent-free conditions, B. Basu, **S. Das**, B. Mandal, *Indian J. Chem B.* **2008**, 1701-1706.
- Recent Advances in KF/alumina Promoted Organic Reactions, B. Basu, P. Das, **S. Das**, *Curr. Org. Chem.* **2008**, 141-158.
- Poly-ionic Heterogeneous Phenylating Agent for Base-free Suzuki-Miyaura Coupling Reaction, B. Basu, **S. Das**, S. Kundu, B. Mandal, *Synlett*. **2008**, 255-259.
- Palladium-catalyzed selective amination of haloaromatics on KF-alumina surface, B. Basu, P. Das, A. K. Nanda, **S. Das**, S. Sarkar, *Synlett*, **2005**, 1275-1278.

- Co-immobilized formate anion and palladium on a polymer surface: a novel heterogeneous combination for transfer hydrogenation, B. Basu, S. Das, P. Das A. K. Nanda, *Tetrahedron Lett.* **2005**, 46, 8591–8593.
- Transfer hydrogenation using recyclable polymer-supported formate (PSF): Efficient and Chemoselective reduction of nitroarenes, B. Basu, P. Das, S. Das, *Mol. Diversity*, **2005**, 9, 259–262.
- Amberlite-supported Formate/Pd Catalyst for C–C coupling Reactions, B. Basu, S. Das, P. Das, B. Mandal, D. Banerjee, F. Almqvist, *Synfact*, 2009, 6, 690.

Oral Presentation/Invited Talk:

- An invited talk on “Regio-selective Functionalization of Activated Pyridine & Pyrazine via Addition & Cross-coupling Reaction” *Gour College, Malda*, **2011**, November 14th.
- An invited talk on “Synthesis of functionalized heterocycles using Grignard Reagents” *Queens College, City University New York*, December **2014**.
- An invited talk on “Benzimidazole based Pd-NHC: A useful catalyst for C-C cross coupling reactions” *Gour College, Malda*, November, **2016**.
- Oral Presentation on “Synthesis of Biaryl ketones via C-S bond cleavage of Thiol-ester using Cu & Ag salt” A. C. College, Jalpaiguri (West Bengal Regional Science Congress) **2016**.
- Oral Presentation on “Auto-tandem catalysis: An unique approach for the direct conversion of isoxazole to 2-azafluorenone” A. B. N. Seal College, March **2016**
- Oral Presentation on “Synthesis of 2-Azafluorenone from isoxazole via Pd-catalyzed tandem reaction” *Burdwan University, Burdwan*, **2016**, February 5.
- Oral Presentation on “Synthesis of Biaryl ketones via C-S bond cleavage of Thiol-ester using Cu & Ag salt” Science City, Kolkata (West Bengal Science Congress) **2017**.
- Oral Presentation on “Selective functionalization of 4-quinolones” SMIT Sikkim, **2018**.