

Dr. Rahul Badru

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Personnel Details

Nationality: Indian
Date of Birth: April 6th 1985
Sex: Male
Marital Status: Unmarried
Language Proficiency: English, Hindi, Punjabi

Academic Summary

Area of specialisation: **Organic Chemistry**

2009-2013 : Ph.D. in Organic Chemistry
Thesis Title: **Synthesis of Heterocyclic Compounds through Cycloadditions of Nitrones and Azomethines with Active Dipolarophiles**
Supervisor: Prof. Baldev Singh, Department of Chemistry, Punjabi University, Patiala, India.

2007 : Qualified CSIR-UGC-NET (JRF) in Dec. 2007

2005-2007 : M.Sc. Organic Chemistry (with distinction), Department of Chemistry, Punjabi University, Patiala, India.

2002-2005 : B.Sc., Mohindra College, Punjabi University, Patiala, India.

Research Experience and Interests

- a) **Post PhD research experience (August 2014 onwards):** Currently working in area of synthesizing organic-inorganic hybrid composite materials (in Collaboration with HOD Dr. Pritpal Singh and my colleague Dr. Sandeep Kaushal) that possess better electrochemical properties and thus may serve as electroanalytical materials for metal ion

detection in waste water or industrial wastes. Research in employing these materials in adsorptive removal of dyes and other organic pollutants is also pursued in our lab.

- b) Also working on **Application of Novel Nano Composite towards purification of metagenomic DNA** with Dr. Pushpinder K. Sharma, Deptt. of Biotechnology from same institute (**Post doc from IISER, Mohali, India**) and submitted the proposal for the same to seek Project from DST, New Delhi, India.
- c) **Research experience as doctoral student, 5 years (2009-2013):** My PhD work focussed on synthesizing organic compounds of pharmacological value: isoxazolidines / pyrrolo isoxazoles through cycloadditions reactions, green synthesis of imidazolidines by carbonylation employing dialkyl carbonates.

Experience in the following fields: Synthetic Organic Chemistry, Cycloaddition reactions, Reduction reactions, Heterocycles synthesis.

Teaching Experience

Position Held	Name of Organisation	Period		Nature of work
		From	to	
Assistant Professor	Sri Guru Granth Sahib World University, Fatehgarh Sahib, Punjab	14.08.2014	continued	Teaching/Research
Assistant Professor	SGGS College, Sec-26, Chandigarh	18.09.2013	13.08.2014	Teaching
Lecturer	GCG, Patiala, Punjab	06.08.2007	15.03.2008	Teaching

Technical Skills

- Experience in handling GC-MS, UV-Visible and FTIR spectrophotometers.
- Very much familiar with ^1H , ^{13}C and two dimensional NMR spectroscopy techniques.
- Knowledge of Operating system (Win 7, XP etc.), ChemSketch, ChemDraw and all basic computer software's.
- Excellent Written and oral Communication skills.

Research Publications in International Journals

1. Sandeep Kaushal, Rahul Badru, Pritpal Singh, Sanjeev Kumar and Susheel K Mittal, Estimation of Trace Level Cadmium (II) by Polyaniline-zirconium phosphoborate nanocomposite based membrane electrode. Accepted: **Journal of Analytical Chemistry**.
2. Sandeep Kaushal, Rahul Badru*, Sanjeev Kumar, Pushpender K. Sharma, Susheel K. Mittal and Pritpal Singh*, Electrochemical behavior of a membrane based on zirconium(IV) phosphoborate nanocomposite and its application in dye removal. **RSC Adv.**, **2016**, 6, 111606. (**Impact Factor: 3.289**)
3. Sandeep Kaushal, Rahul Badru, Sanjeev Kumar, Susheel K. Mittal and Pritpal Singh*, Nanocomposite zirconium phosphoborate ion-exchanger incorporating carbon nanotubes with photocatalytic activity. **Separation Science and Technology**, 51(18), **2016**, 2896. (**Impact Factor: 1.083**)
4. Sandeep Kaushal, Rahul Badru, Sanjeev Kumar, Susheel K. Mittal and Pritpal Singh*, Fabrication of a mercury(II) ion selective electrode based on poly-*o*-toluidine–zirconium phosphoborate. **RSC Adv.**, **2016**, 6, 3150. (**Impact Factor: 3.289**)
5. Rahul Badru and Baldev Singh, Synthesis of imidazolidin-2-ones employing dialkyl carbonates as eco-friendly carbonylation source. **RSC Adv.**, **2014**, 4, 38978. (**Impact Factor: 3.289**)
6. Rahul Badru and Baldev Singh, Triethylamine catalysed synthesis of oxazepine from maleamic acids. **Journal of Heterocyclic Chemistry**, **2015**, 52(3), 635. (ISSN: 1943-5193, **Impact Factor: 0.685**)
7. Sakshi Shah, Rahul Badru and Baldev Singh, Diastereoselective synthesis of novel Spiro-isoxazolidines via [3+2] cycloaddition. **Synthetic Communications**. **2013**, 43, 1073-1082. (ISSN: 1532-2432, **Impact Factor: 1.065**)
8. Rahul Badru, PreetAnand and Baldev Singh, Synthesis and evaluation of hexahydropyrrolo[3,4-d]isoxazole-4,6-diones as anti-stress agents, **European Journal of Medicinal Chemistry**. **2012**, 48, 81-91. (ISSN: 0223-5234, **Impact Factor: 3.902**)
9. Rahul Badru, Sakshi Shah and Baldev Singh, 1,3-Dipolar cycloaddition reactions of 2-substituted azomethine-*N*-oxides with *N*-benzyl maleimides leading to the synthesis of stereoisomers. **Journal of Heterocyclic Chemistry**. **2012**, 49, 336-341. (ISSN: 1943-5193, **Impact Factor: 0.685**)
10. Sandeep Kaushal, Rahul Badru*, Harpreet K. Mann, Sanjeev Kumar and Pritpal Singh*, Efficient removal of cationic and anionic dye from their binary mixtures by adsorption over modified zirconium Phosphoborate. (Communicated)

International/National Conferences/Seminars Participated

1. NPICS-SAP, Feb 9-10, 2017, Punjabi University, Patiala-poster presentation
2. National Seminar “*New Paradigm in Chemical Sciences*” Feb 13, 2014, Punjabi Univ., Patiala –poster presentation
3. National Seminar on “*Chemistry for a better tomorrow: Current Trends and Challenges*” March 8, 2014, Mata Gujri College, Fatehgarh Sahib - poster presentation

4. Two-days National Seminar “*New Frontiers in Chemistry*” Feb 15-16, 2013, Punjabi Univ., Patiala –poster presentation
5. International Conference “*Chemical Constellation Cheminar – 2012*” [CCC-2012], Sept 10-12, Dr B R Ambedkar National Institute of Technology, Jalandhar – poster presentation
6. National Conference on Global Challenges: *New Frontiers in Chemical Sciences* (GC: NFCS-2012), Sept 22-23, Kurukshetra University, Kurukshetra– poster presentation
7. Two-days National Seminar, “NSCIDS” -Feb 15-16,2012, Punjabi Univ., Patiala
8. *International Conference on Innovations in Chemistry for Sustainable Development* (Dec 3-5, ICSD-2011), Panjab Univ. Chandigarh
9. Prof. Ram Paul International Conference -Feb 11-12, 2011, Panjab Univ. Chandigarh
10. National conference *RACES*-Feb. 28-March,2011, Multani Mal Modi College, Patiala
11. Two-days National Seminar, “NSRACE” -Feb 15-16, 2011, Punjabi Univ., Patiala
12. Two-days National Seminar, Feb 15-16, 2010, Punjabi Univ., Patiala
13. National conference *RACES*-Jan 16-17, 2009, Multani Mal Modi College, Patiala
14. Two-days National Seminar, “NSCIDS” -Jan 21-22, 2009, Punjabi Univ., Patiala

Awards/Fellowships

1. Awarded **Senior Research Fellowship** (SRF) from 18.06.2011 to 19.08.2013 by University Grants Commission, India.
2. Awarded **Junior Research Fellowship** (JRF) from 18.06.2009 to 17.06.2011 by University Grants Commission, India.
3. Master degree with distinction.
4. 2nd rank holder in M.Sc. entrance examination of Punjabi University, Patiala.
5. Was in Merit list of Board in 10th standard.
6. Stood 2nd in Chemistry at University level in B.Sc.-II.

References

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|---|---|
| <ol style="list-style-type: none"> 1. Prof. Baldev Singh
Department of Chemistry
Punjabi University
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e-mail: drbaldev.chem@gmail.com | <ol style="list-style-type: none"> 2. Prof. Susheel K. Mittal
School of Chemistry and Biochemistry
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| <ol style="list-style-type: none"> 3. Prof. Ashok Kumar Malik | |

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