

Dr. AMAN BHALLA

Ph.D (Chemistry), M.Sc [H. S.] (Chemistry), B. Ed.

Assistant Professor

Department of Chemistry and

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Panjab University, Chandigarh

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E-mail.: amanbhalla@pu.ac.in, aman.bhalla20@gmail.com**• ACADEMIC QUALIFICATIONS:**

S. No.	Course	College/ Institution	Univ./Board	Period	Major Subjects
1.	Ph. D.	Dept. of Chemistry, P.U., Chandigarh	Panjab University, Chandigarh	20 th Sept. 2001-20 th Jan. 2007	Chemistry (Organic)
2.	B. Ed.	Govt. College of Education, Sector 20, Chandigarh	Panjab University, Chandigarh	2000-2001	Teaching of Science, Teaching of Hindi, Philo. Psych. Learn.
3.	M. Sc. (Hons. School)	Dept. of Chemistry, P.U., Chandigarh	Panjab University, Chandigarh	1997-1999	Chemistry (Organic Chemistry)
4.	B. Sc. (Medical)	D. A. V. College, Sector 10, Chandigarh	Panjab University, Chandigarh	1994-1997	Chemistry, Zoo., Bot., Eng., Pun., Hindi
5.	10+2 (Medical)	D. A. V. College, Sector 10, Chandigarh	C. B. S. E	1992-1994	Chem., Phy., Bio., Eng., Phy. Edu.
6.	Matric	D. A. V. School, Sector 15, Chandigarh	C. B. S. E	1991-1992	Sci., Math, Eng., Pun., Hindi, Soc. Sc.

• NATIONAL LEVEL EXAMINATION CLEARED (CSIR-UGC-NET):

Qualified CSIR-UGC National Eligibility Test (NET) for JRF & SRF and LS in subject of Chemical Science conducted by CSIR-UGC in July 2001

• FELLOWSHIP (AWARDED):

- DST : as Junior Research Fellow (Sept. 2001 – Dec. 2002)
- CSIR (OPEN) : as Junior Research Fellow (Dec. 2002 – Dec. 2004)
- CSIR (OPEN) : as Senior Research Fellow (Jan. 2005 – Dec. 2006)
- DST SERC PROJECT 1 (SR/FTP/CS-135/2006) : as Principal Investigator (July 2007 – Sept. 2010)
- DST SERB PROJECT 2 (SR/FTP/CS-037/2010) : as Principal Investigator (Oct. 2010 – Oct. 2013)

• **RESEARCH EXPERIENCE**

[A]: AREA OF EXPERTISE: SYNTHETIC ORGANIC CHEMISTRY

The main objective of the research is the development of new synthetic strategies for the synthesis of appropriately C-3/C-4/N-1 substituted β -lactam synthons and other heterocycles. This allows stereocontrolled transformations leading to important β -lactam synthons attracting the attention of organic as well as medicinal chemists. Emphasis has been put specially on the generation of stereoselectivity at a C-3 and C-4 position of β -lactams. The synthesized β -lactams and heterocycles have been submitted for their molecular docking, and evaluated for in silico as well as in vitro studies (Biological evaluation).

[B]: RESEARCH PROJECTS: AWARDED

1. DST SERC Fast Track Project: SR/FTP/CS-135/2006: **COMPLETED**

Duration: 19th July 2007 - 18th Sept. 2010 (3 years 2 months)
Position: Principal Investigator
Cost of Project: **Rs. 18, 48, 000.00/- (18.48 lacs)**
Title of Project: “Studies towards incorporation of selenium and tellurium in the β -lactam heterocycle and their biological activities”

2. DST SERB Fast Track Project: SR/FTP/CS-037/2010: **COMPLETED**

Duration: 29th Oct. 2010 - 28th Oct. 2013 (3 years)
Position: Principal Investigator
Cost of Project: **24,35,000.00/- (24.35 lacs)**
Title of Project: “Studies towards Asymmetric and Chemoenzymatic Synthesis of Chiral β -Lactams and their Structure Activity Relationship (SAR)”

[C]: RESEARCH PUBLICATIONS:

DETAIL LIST OF PUBLICATIONS:

S. No	Authors	Title	Name of Journal	Volume	Page	Year
1.	Mahmood S. Magtoof, Shiwani Berry, Shamsher S. Bari, Bimal K. Banik and Aman Bhalla	Facile Synthesis of Novel Racemic 3-Methoxy- and 3-Phthalimido-1-(4'-N, N-diethylaminophenyl)-Substituted β -Lactams	Asian J. Org. Med. Chem.	2(3)	In Press	2017
2.	Dipika Narula, Shamsher S. Bari, Bimal K. Banik, and Aman Bhalla	An Investigation towards the 2,3-dichloro-5,6-dicyanobenzoquinone (DDQ) catalyzed cross-dehydrogenative coupling (CDC)	Asian J. Org. Med. Chem.	2(2)	58-62	2017

		reactions of thio- β -lactams/thioethanoates with aliphatic/aromatic nucleophiles				
3.	Mahmood S. Magtoof, Anu Kumari, Shamsher S. Bari, Bimal K. Banik, and Aman Bhalla	Facile synthesis of some novel triazole and triazine derivatives	Heterocyclic Lett.	7	294	2017
4.	Preety Saini, Shamsher S. Bari, Bimal K. Banik, and Aman Bhalla	A synthetic route for the novel pyrimidine-substituted alkanooate, acetohydrazide and imines: Synthons for β -lactams	Synth. Commun.	47	982-989	2017
5.	Jitender Bhalla, Shamsher S. Bari, Aman Bhalla	Pyrimidine and Pyrazole Linked Azetidin-2-ones: Entry to Novel Class of β -Lactam Heterocycles	J. Heterocyclic Chem.	DOI 10.1002/jhet.2817	DOI 10.1002/jhet.2817	2017
6.	Aman Bhalla , Garima Modi, S. S. Bari, Anu Kumari, Shiwani Berry, Geeta Hundal	Stereoselective synthesis of novel C-3 functionalized 3-sulfonyl- β -lactams: Promising biologically active heterocyclic scaffolds	Tetrahedron Lett.	58	1160-1165	2017
7.	Aman Bhalla , Garima Modi, S. S. Bari, Anu Kumari, Dipika Narula, Shiwani Berry	An investigation towards the diastereoselective synthesis of 3-acetoxy/methoxy/phthalimido- β -lactams using chiral imines	Tetrahedron : Asymmetry	28	307-316	2017
8.	Anu Kumari, Shamsher S. Bari, Bimal K. Banik, and Aman Bhalla	Studies towards the synthesis of novel <i>N</i> 1- & <i>N</i> 2-benzotriazole linked C-3 substituted azetidin-2-ones	Heterocyclic Lett.	7	105-112	2017
9.	Preety Saini, Shamsher S. Bari, Bimal K. Banik,	Facile synthesis of novel imidazo[2,1- <i>b</i>]thiazole linked	Heterocyclic Lett.	7	75-80	2017

	and Aman Bhalla	schiff's bases: potential synthon for β -lactams				
10.	Aman Bhalla , Shamsher S. Bari, Sunil Vats, Jitender Bhalla, Kiran Sharma, Dipika Narula	One pot, simple and efficient synthesis of (<i>E</i>)- and (<i>Z</i>)-3-allylidene- β -lactams from 3-allyl-3-phenylseleno- β -lactams: analogues of β -lactamase inhibitors	Tetrahedron Lett.	57	4763-4766	2016
11.	Aman Bhalla , Shamsher S. Bari, Jitender Bhalla, Sadhika Khullar, Sanjay Mandal	Facile synthesis of novel halogenated 4-pyrazolylspirocyclic- β -lactams: versatile heterocyclic synthons	Tetrahedron Lett.	57	2822-2828	2016
12.	Reshma , Renu Arora, Geeta Hundal, Aman Bhalla And S.S.Bari	An efficient synthesis of spiro- β -lactams having sulfenyl, sulfinyl and sulfonyl moiety	J. Chem. Sci	127(11)	1957-1966	2015
13.	Aman Bhalla , S. S. Bari, Shiwani Berry, Jitender Bhalla, Sunil Vats, Sadhika Khullar, Sanjay Mandal,	Facile synthesis of novel monocyclic trans- and cis-3-oxy/thio/seleno-4-pyrazolyl- β -lactams	Arkivoc	vii	10-27	2015
14.	Aman Bhalla , S. S. Bari, Jitender Bhalla	Synthesis of novel pyrazolylmethylene-pyrimidine heterocycles-potential synthons for hybrid β -lactams	Can. Chem.Trans	3	72-84	2015
15.	S. S. Bari, Aman Bhalla , Reshma and Geeta Hundal	Facile synthesis of novel bicyclic β -lactams: analogues of C-fused penicillin type ring systems	Tetrahedron Lett.	54	483-486.	2013
16.	S. S. Bari, Aman Bhalla , Paloth Venugopalan, Qudrat Hundal,	Facile synthesis of novel C-3-monosubstituted-3-phenylthio- β -lactams	Resc. J. Chem. Soc.	3(7)	45-53	2013
17.	Aman Bhalla , S.S. Bari, S. Vats and M.L. Sharma	Facile and Stereoselective Synthesis of Novel trans-3-Monosubstituted-3-	Resc. J. Chem. Soc.	2(1)	59-64	2012

		benzylseleno- β -lactams				
18.	S. S. Bari, R. Arora, Aman Bhalla and P. Venugopalan	Facile synthesis of 3-allylidene- β -lactams via thermal β -elimination of 3-allyl-3-sulfinyl- β -lactams.	Tetrahedron Lett.	51	1719-1722.	2010
19.	Aman Bhalla , Yogesh Nagpal, K. K. Bhasin, S. K. Mehta, S. S. Bari	Synthesis and characterization of novel benzyl/(diphenyl)methyl/naphthylseleno substituted mono cyclic- β -lactams: X-ray structure of trans-1-(4'-methoxyphenyl)-3-(diphenyl) methyl seleno-(4'-methoxy phenyl)azetidin-2-one	J. Organomet. Chem.	695	1979-1985.	2010
20.	S. S. Bari, M. S. Magtoof and Aman Bhalla	Potential synthons for biologically active compounds	Monatsh. Chem.	141	987-991	2010
21.	Shamsher S. Bari, Reshma, Aman Bhalla , and Geeta Hundal	Stereoselective synthesis and Lewis acid mediated functionalization of novel 3-methylthio- β -lactams.	Tetrahedron	65	10060 - 10068	2009
22.	Aman Bhalla , Yogesh Nagpal, Rajeev Kumar, S. K. Mehta, K. K. Bhasin and S. S. Bari.	Synthesis and characterization of novel pyridyl/naphthyl/(diphenyl)methylseleno substituted alkanolic acids: X-ray structure of 2-pyridylseleno ethanoic acid, 2-naphthyl selenoethanoic acid and 2-(diphenyl) methylselen oethanoic acid	J. Organomet. Chem.	694	179-189	2009
23.	K. K. Bhasin, Neelam Singh, Shivani, Rishu, Aman Bhalla , Gurjeet Kaur, S. K. Mehta.	Synthesis and characterization of some α,ω -bis(naphthylseleno)alkanes: X-ray crystal structure of 1,2- bis(1-naphthylseleno)ethane	Inorg. Chim. Acta	360	3127-3131	2007

24.	Aman Bhalla, Paloth Venugopalan, Kuldip K. Bhasin Shamsher S. Bari.	Seleno- β -lactams: synthesis of monocyclic and spirocyclic selenoazetidin-2-ones.	Tetrahedron .	63	3195- 3204	2007
25.	Aman Bhalla, Sitansh Sharma, Kuldip K. Bhasin and Shamsher S. Bari.	Convenient Preparation of Benzylseleno- and Phenylselenoalkanoic acids: Reagents for Synthesis of Organoselenium Compounds.	Synth. Commun.	37	783- 793	2007
26.	Aman Bhalla, Paloth Venugopalan and Shamsher S. Bari.	A new synthetic approach to novel spiro- β -lactams	Eur. J. Org. Chem.	-	4943- 4950	2006
27.	Aman Bhalla, Suman Rathee, Sachin Madan, Paloth Venugopalan and Shamsher S. Bari.	Lewis acid mediated functionalization of β - lactams: mechanistic study and synthesis of C-3unsymmetrically disubstituted azetidin-2- ones.	Tetrahedron Lett.	47	5255- 5259	2006
28.	Aman Bhalla, Paloth Venugopalan and Shamsher S. Bari.	Facile stereoselective synthesis of cis- and trans-3-alkoxyazetidin- 2-ones.	Tetrahedron	62	8291- 8302	2006
29.	Aman Bhalla, Sachin Madan, Paloth Venugopalan and Shamsher S. Bari.	C-3 β -Lactam carbocation equivalents: versatile synthons for C-3 substituted β -lactams	Tetrahedron	62	5054- 5063	2006
30.	Jasvinder Singh, Irvinder Kaur, Jasamrit Kaur, Aman Bhalla, and Goverdhan L. Kad.	Speedy and Regioselective 1,2- Reduction of Conjugated α,β - Unsaturated Aldehydes and Ketones Using NaBH ₄ /I ₂ .	Synth. Commun.	33	191- 197	2003

Books/Reports/Chapters/General articles etc

S,No	Ttile (Chapters, <i>In Book</i>)	Author's name	Publisher	Year of Publication
1.	Synthesis of Diverse β -	Aman Bhalla,	Springer,	2017

	Lactams: Role of Appended Hetero Moiety on its Activity. <i>In β-lactams: Novel Synthetic Pathways and Applications</i>	S. S. Bari, Jitender Bhalla	(International Edition) pp 1-40	
2.	Role of Transition Metal Reagents in β -lactam Synthesis: New Paradigms. <i>In β-lactams: Novel Synthetic Pathways and Applications</i>	S. S. Bari, Aman Bhalla Jitender Bhalla	Springer, (International Edition) pp 41-72	2017
3.	Recent Synthesis and Biological Applications of Novel Benzotriazoles: A Review	Aman Bhalla , Shamsher S. Bari, Anu Kumari	Am. J. PharmTech Res. 7(7), pp 34-56	2017
4.	2-Aminothiophenes: A Review On Synthetic Routes and Applications (Biological /Synthons)	Aman Bhalla , Preety Saini, Shamsher S. Bari	Am. J. PharmTech Res. 7(7), pp 57-78	2017
5.	Biological Activity Profile of Thiazolidinone Scaffolds Linked to Bioactive Thiazoles: A Review	Aman Bhalla , Shiwani Berry, Shamsher S. Bari	Am. J. PharmTech Res. 6(6), pp 62-78	2016
6.	A Comprehensive Review On Structural and Biological Activity Relationship of 3-Acetoxyazetid-2-Ones	Aman Bhalla , Dipika Narula, Shamsher S. Bari	Am. J. PharmTech Res. 6(6), pp 96-116	2016
7.	Spirocyclic β -lactams: Synthesis and Biological Evaluation of Novel Heterocycles. <i>In Topics in Heterocyclic Chemistry: Heterocyclic Scaffold I</i>	S. S. Bari, Aman Bhalla	Springer, (International Edition) pp 49-99.	2010

[D]:

SUPERVISING RESEARCH:

Presently, I am supervising 6 Ph. D Students in their research projects.

Ph. D. (Organic Chemistry):

S. No.	Name	Year/Session
1	Jitender Bhalla	Ph.D Degree Awarded 2016
2	Kiran Sharma (SRF)	2012-pursuing
3	Shiwani Berry (SRF)	2012-pursuing
4	Dipika Narula (SRF)	2012-pursuing
5	Anu Kumari (SRF)	2012-pursuing
6	Preety Saini (SRF)	2012-pursuing

7	Navneet Kaur (SRF)	2014-pursuing
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[E]:CONFERENCES/SYMPOSIA ATTENDED (ORAL/POSTER PRESENTATION):- More than 70 (International and National)

• **TEACHING EXPERIENCE: 11 years**

I have been actively pursuing teaching w.e.f. session 2006 in the Department of Chemistry & Centre of Advanced Studies in Chemistry, Panjab University, Chandigarh.

Positions	Year
Ph.D Research Scholar	2006
Principal Investigator (DST Project)	2007 to 18-08-2011
Assistant Professor (Stage II)	19-08-2011 onwards

SCHOOL CHILDRENS-RELATED ADMINISTRATIVE AND ORGANIZATIONAL EXPERIENCE:

1. **Judge**, CBSE Science Exhibition 2012, organized by Gurukul Global School in association with Central Board of Secondary Education.
2. **Laboratory Mentor**, Ist DST Inspire Internship Camp, Panjab University Chandigarh, March 23-27, 2015
3. **Laboratory Mentor**, 2nd DST Inspire Internship Camp, Panjab University Chandigarh, August 17-21, 2015

ADMINISTRATIVE AND ORGANIZATIONAL EXPERIENCE:

4. **Chief Co-ordinator** for the Under-Graduate and Post-Graduate Semester System Examinations December 2016 for centre no. CHD-68
5. **Convener** of Registration-cum-Coordination Committee of Chemistry Department for organizing International year of Chemistry 2011.
6. **Co-Convener** of Transport/Press-cum-Publicity Committee of Chemistry Department for organizing International year of Chemistry 2011.
7. **Secretary**, Technical Committee of Chemistry Department for the year 2012.
8. **Secretary**, Post-Graduate-APMEC of Chemistry Department for the session 2012-2013
9. **Secretary**, Academic Committee of Chemistry Department for the year 2013.
10. **Secretary**, Post-Graduate-APMEC of Chemistry Department for the session 2013-2014
11. **Secretary**, Administrative Committee of Chemistry Department for the year 2014.
12. **Secretary**, Under-Graduate-APMEC of Chemistry Department for the session 2017-2018.
13. **Member** of Research Degree Committee in Chemistry for the term 1.1.2012 to 31.12.2013.
14. **Member** of Admission Committee of Chemistry Department for the session 2012-2013.
15. **Member** of Seminar Committee of Chemistry Department for the session 2012-2013.
16. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2014-2015.
17. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2013-2014.
18. **Member** of Board of Studies in Applied Sciences, Panjab University, Chandigarh for the session 2013-2014.
19. **Member** of Seminar Committee of Chemistry Department for the session 2013-2014.
20. **Member**, Academic Committee of Chemistry Department for the year 2015.
21. **Member**, Administrative Committee of Chemistry Department for the year 2016.

22. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2015-2016.
23. **Member** of Admission Committee of Chemistry Department for the session 2016-2017, 2017-2018.
24. **Member**, Technical Committee of Chemistry Department for the year 2017.
25. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2016-2017.
26. **Member** of the Board of Post-Graduate Studies in Chemistry for the term 01-01-2017 to 31-03-2019.
27. **Treasurer of Chemistry Department Alumni Association, Panjab University (CDAA PU) 2016-2019.**

LIFE MEMBERSHIPS:

- I. Life Membership of **Chemical Research Society of India (CRSI) LM 968.**
- II. Life Membership of **The Indian Thermodynamics Society LM 309.**
- III. Life Membership of **Chemistry Department Alumni Association, Panjab University (CDAA PU).**

MEMBER OF EDITORIAL/REVIWERS BOARD:

- Member of editorial board of Journal of Chemistry, Environmental Sciences and its Application, Asian Journal of Organic and Medicinal Chemistry.
- Member of reviewers committee of Can. Chem. Trans., Curr. Med. Chem., Indian Journal of Chemistry, Section-B, Lett. In Org. Chem. Etc.

ACADEMIC DISTINCTIONS / HONOURS / AWARDS / OTHER ACHIEVEMENTS

MEMBERSHIPS:

- Awarded as Best Poster Presentation in **10th National Conference on Thermodynamics of Pharmaceutical, chemical and biological systems held on Nov, 20-21, 2015.** at UIPS & Department of Chemistry, Panjab University, Chandigarh.
- Awarded as Best Poster Presentation in **UGC sponsored National Seminar on Spectroscopy-an Immense tool in chemistry held on 21-8-2015** at Department of Chemistry, MCM DAV College.
- Awarded as Best Poster Presentation in **4th Chandigarh Science Congress (CHASCON-04) held in March 19-20, 2010.**
- Participated in the **N. S. S camp** organized by the Panjab University in connection with the “**Youth for Health Society**” at Govt. College of Education: Sector 20-D & Village: Kajheri (UT) (**Sept-Oct. 2000**).
- Participated as a member of the Organizing Committee in the Children Science Congress on **11th Nov. 2006**, organized by Panjab University, Chandigarh in association with Indian Science Congress (Chandigarh Chapter) & PUSC.
- Awarded, “**Panjab University Chemical Society Certificate of Honour**” and memento for standing **First** in Badminton (Mixed Doubles) in the event of Intra Department Sports at the Department of Chemistry, Panjab University, Chandigarh (**2004-2005**).
- Life Membership of **Chemical Research Society of India.**
- Annual membership of **Indian Council of Chemists**
- Life Membership of **Panjab University, Chemistry Department Old Student Association.**
- Received, “D. A. V. College Academic Merit Certificate” for standing **Second** in Chemistry & **First** in Punjabi in B. Sc. (II) Medical Examination (**1996**).
- Received, “D. A. V. College Academic Merit Certificate” for standing **First** in B. Sc. (III) Medical House Test Examination (**1996**).
- Received, “D. A. V. College Academic Merit Certificate” for Active member of Bose Biological Association (**1996-1997**).

(Dr. AMAN BHALLA)