CURRICULUM VITAE

Dr. Sumit Kumar
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Department of Chemistry
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RESEARCH INTEREST

- Heterocycles synthesis: Synthesis of functionalized heterocyclic compounds of medicinal relevance
- Multicomponent reaction: Design of new MCRs chemistry
- Green Chemistry: Development of new and greener protocols for organic synthesis

TECHNICAL SKILLS

- Four years experiences in Synthetic Organic Chemistry
- Extensively trained in multicomponent synthesis (MCRs) and microwave assisted organic synthesis (MAOS)
- Handling risk prone chemicals: Experience in handing toxic and corrosive chemicals
- Handling of Instruments: IR, UV, NMR, GC-MS, HRMS.
- Expertise in writing scientific manuscripts/reports
- Ability to work in team

AREA OF RESEARCH:

My research interests lie within the area of synthetic organic methodology, Organic Synthesis & Catalysis, Novel Reactions, Development of new catalytic reactions of broad synthetic utility, Synthesis, Synthesis of molecules of pharmaceutical and biological significance, Green protocols in Organic Synthesis.

SCIENTIFIC OUTCOMES:

Fifteen publications in renowned scientific journals.

LIST OF PUBLICATIONS

1. N. Verma Shaily, **S. Kumar**, "Benzofuran-3(2H)-ones Derivatives: Synthesis, Docking and Evaluation of Their *in vitro* Anticancer Studies", *Indian Journal of Chemistry-Section B,* **2018,** under review**.**

2. **S. Kumar,** "Recent advances in the Schiff bases and N-heterocyclic carbenes (NHCs) as ligands in the cross-coupling reactions: A comprehensive review", *J. Heterocyc. Chem.*, **2019,** manuscript accepted**.**

3. **S. Kumar, "**Editorial: N-Heterocyclic Carbenes", *To Chemistry*, **2018**, *1*, 3.

4. **S. Kumar,** N. Verma, N. Ahmed, "Microwave assisted highly efficient one-pot multicomponent synthesis of novel 2-(tetrasubstituted-1H-pyrrol-3-yl)-4H-chroman-4-ones catalysed by heterogeneous silica gel supported Polyphosphoric acid", *Journal of Saudi Chemical Society*, **2018,** *22*, 136.

5. **S. Kumar**, N. Verma, N. Ahmed, "LiBr/β-CD/IBX/H_2O-DMSO: a new approach for one pot biomimetic regioselective ring opening of chalcone epoxides to bromohydrins and conversion to 1,2,3-triketones", *Synth. Commun.*, **2017**, *47*, 1110.

6. **S. Kumar**, N. Verma, S. Zubair, S. M. Faisal, S. Kazmi, S.Chakraborty, M. Owais, N. Ahmed, "Design and synthesis of novel non-steroidal Phytoestrogen based probes as potential biomarker, evaluation of anticancer activity and docking studies", *J. Heterocycl. Chem.*, **2017**, 54, 2242-57.

7. **S. Kumar,** N. Ahmed, "β-Cyclodextrin/IBX in water: highly facile biomimetic one pot deprotection of THP/MOM/Ac/Ts ethers and concomitant oxidative cleavage of chalcone epoxides and oxidative dehydrogenation of alcohols" *Green Chem*. **2016**, *18*, 648.

8. **S. Kumar**, N. Verma, N. Kumar, A. Patel, P. Roy, V. Pruthi, N. Ahmed "Design, Synthesis, Molecular docking and Biological studies of Novel Phytoestrogen-Tanaproget hybrids", *Synth. Commun*. **2016**, *46*, 460.

9. N. Verma, **S. Kumar**, N. Ahmed, "A facile access to novel heterocyclic analogs of chalcone from newly synthesized ketone containing isoxazole and benzoxazinone ring", *RSC Adv.*, **2016**, *6*, 51183.

10. N. Verma, **S. Kumar**, N. Ahmed, "Asymmetric Synthesis of 3-Benzofuranones through 5-Exo-trig Cyclization of 4-Nitroaryl Olefins", *Tetrahedron lett*., **2016**, *57*, 3547–3550.

11. Shaily, A. Kumar, **S. Kumar**, N. Ahmed,'Naked-eye' colorimetric/fluorimetric detection of F^- ions by biologically active 3-((1H-indol-3-yl)methyl)-4-hydroxy-2H-chromen-2-one derivatives", *RSC Adv*., **2016**, *6*, 108105.

12. **S. Kumar**, N. Verma, I. Parveen, N. Ahmed, "A Green, Solvent-Free, Microwave-Assisted, High-Yielding $YbCl_3$ Catalyzed Deprotection of THP/MOM/Ac/Ts Ethers of Chalcone Epoxide and 2′-Aminochalcone and Their Sequel Cyclization", *J. Hetrocycl. Chem*., **2016,** *53*, 2111.

13. **S. Kumar**, N. Ahmed, "A facile approach for the synthesis of novel 1-oxa and 1-aza-flavonyl-4-methyl-1H-benzo[d][1,3]oxazin-2(4 H)-ones by microwave enhanced Suzuki–Miyaura coupling using bidentate chromen-4-one-based Pd(II)–diimine complex as catalyst", *RSC Adv*., **2015**, *5*, 77075.

14. **S. Kumar,** N. Verma, N. Ahmed, "*β*-Cyclodextrin in water: highly facile biomimetic one pot deprotection of phenolic THP/MOM/Ac/Ts ethers and concomitant regioselectivecyclization of chalcone epoxides and 2'-aminochalcones", *RSC Adv*. **2015**, 5, 85128.

15. **S. Kumar**, A. Patel, N. Ahmed, ''Microwave-assisted expeditious and efficient synthesisof novel quinolin-4-yl methoxychromen-2- and -4-ones catalyzed by $YbCl_3$ under solvent free one-pot three components domino reaction and their antimicrobial activity", *RSC Adv*. **2015**, *5*, 93067.

16. **S. Kumar**, N. Konduru, N. Verma, N. Ahmed, "β-Cyclodextrin in Water: Highly Versatile and Green Approach for Biomimetic Regioselective Ring Opening of Chalcone Epoxides with Nitrogen Heterocycles", *Synth. Commun*., **2015**, *45*,2555.

BOOK PUBLISHED

I have been acknowledged in a chapter 'Synthetic Advances in the Indane Natural Product Scaffolds as Drug Candidates: A Review' of book named '**Studies in Natural Products Chemistry**' published by Elsevier in 2016. ISBN: 978-0-444-63932-5

CONFERENCES, WORKSHOPS AND WEBINARS ATTENDED

1. Poster presentation in "India International Science Festival IISF-2018" jointly organized by Ministry of Science & Technology, Ministry of Earth Science, Department of Biotechnology & Vijnana Bharti during 5th-8th October, **2018**.
2. Oral presentation in "National Conference on Recent Advances in Chemical Sciences NCRACS-2018" organized by Department of Chemistry, Maharshi Dayanand University, Rohtak during 7th March, **2018**.
3. Poster presentation in "ACS on Campus" organized by American Chemical Society in association with Department of Chemistry, IISER Mohali on 9 Feb, **2018**.
4. Poster presentation in "18th CRSI National Symposium In Chemistry" organized by Institute of Nano Science and Technology and Punjab University during 5th-7th February, **2016**.
5. "Symposium On Modern Trends In Inorganic Chemistry-XV" held at the Department of Chemistry, IITR, Roorkee during 13-16 December, **2013**.
6. Attended one day workshop on "Author workshop on Book Publishing" organized by Mahatma Gandhi Central library, IIT Roorkee in association with Elsevier on 26 Sep., **2016**.
7. Attended one day workshop on "Novel Thermoelectric Materials" organized by Department of Chemistry, IIT Roorkee on 5 March, **2016** under QIP programme.
8. Attended one day workshop on "Scopus and Mendeley" organized by Mahatma Gandhi Central library, IIT Roorkee on 10 March, **2015**.
9. Attended one day workshop on "Nano Drug Delivery Systems (Industry-Academia Interaction)" organized by Centre of Excellence: Nanotechnology, Indian Institute of Technology Roorkee, Roorkee on January 10, **2015**.
10. Successfully completed the course "ACS Reviewer Lab" organized by American Chemical Society on 12th September, **2018.**

11. "How to review a manuscript: the reviewing process" organized by Elsevier Publishing Campus on 23rd February, **2016**.
12. "How to get published in the Chemical Sciences" organized by Elsevier Publishing Campus on 25th December, **2015**.
13. "The Fundamentals of Peer Review for the Chemical Sciences" organized by Elsevier Publishing Campus on 26th December, **2015**.

PROJECTS

Title: Radiopharmaceutical chemistry and Molecular Imaging Research

No. DAE-599-CMD INR 28,00,000/-

Institute: IIT Roorkee

As Junior/Senior Research Fellow

Funding Agency: BRNS (Completed)

ACADEMIC QUALIFICATION

2016: Ph.D. in Synthetic/Medicinal Organic Chemistry

Indian Institute of Technology (IITR) Roorkee, India.

Title: Design, Synthesis and Biological Evaluation of Novel Flavonoid Derivatives.

Thesis Advisor: Dr. Naseem Ahmed, Associate Professor, IIT Roorkee, India.

Detail	Year	Specialization(s)	Institute/ University
Ph.D.	2016	Synthetic Organic Chemistry	IIT-Roorkee
M. Sc.	2012	Organic Chemistry	MDU Rohtak
B. Sc.	2010	Chemistry, Zoology, Botany	MDU Rohtak
12th	2007	Chemistry, Physics, Biology	CBSE, New Delhi
10th	2005		HBSE, Bhiwani
CSIR-JRF	2012	Chemical Sciences	CSIR
GATE	2013	Chemistry	IIT-Bombay

FELLOWSHIPS

- **2013-14:** CSIR-Junior Research Fellowship.
- **2015-16**: CSIR- Senior Research Fellowship.

EXPERIENCE

- B.Tech (Ist): Engineering Chemistry (Theory & Lab) – 2 years (CUH, Mahendergarh)
- M.Sc. (Ist), B. Tech (Ist) and M. Tech (Ist): Practical Classes – 2 years (IIT Roorkee)

ACADEMIC COMMITTEES

1. Member of Admission Committee-2017 & 2018.
2. Member of Technical and Secretarial Assistance committee during NAAC visit.
3. Member of Lunch and refreshment committee in National Science Day-2018.

EDITORIAL BOARD MEMBER/REVIEWER OF THE JOURNALS

1. Editor-in-chief of the Journal “To Chemistry”.
2. Editorial board member of SCIREA Journal of Chemistry.
3. Editorial board member of Journal of Research in Applied Chemistry.
4. Reviewer of New Journal of Chemistry.
5. Reviewer of Journal of Heterocyclic Chemistry.
6. Reviewer of Science Journal of Chemistry.

PROFESSIONAL BODIES’ MEMBERSHIP

1. Member of American Chemical Society.
2. Member of ACS Medicinal Chemistry Technical Division.
3. Member of ACS Organic Chemistry Technical Division.
4. Member of ACS Biological chemistry Technical Division.
