

# Dr. Sunil Kumar

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## ACADEMIC DETAILS

2013	Ph.D. Chemistry	Kurukshetra University, Kurukshetra (2008-2013)
	Thesis Title:	Synthesis and Biological Evaluation of Some Natural and Non-Natural Thiazole Derivatives (Supervisor: Prof. Ranjana Aggarwal)
2007	M.Sc. Chemistry	Kurukshetra University, Kurukshetra (2005-2007)
2005	B.Sc. Non-Medical	RKSD College, Kaithal, Kurukshetra University (2002-2005)

## TEACHING AND RESEARCH EXPERIENCE

Apr 02, 2021- Continue	J. C. Bose University of Science & Technology, YMCA, Faridabad
Aug 05, 2019 - Mar 31, 2021	Maharaja Agrasen University, Baddi, Solan, Himachal Pradesh
Aug 07, 2015 - Mar 31, 2016	SLIET Longowal(Deemed University), Sangrur, Punjab
Aug 01, 2013 - May 09, 2015	NIILM University, Kaithal, Haryana

## POST-DOCTORAL RESEARCH EXPERIENCE

Jul 13, 2017 - Jul 12, 2019	Post-Doctoral Fellow in Department of Chemistry, Punjab University, Chandigarh, India
Apr 20, 2016 - May 31, 2017	Post-Doctoral Fellow in Department of Applied Chemistry, National Chiao-Tung University, Hsinchu, Taiwan

## INDUSTRIAL RESEARCH EXPERIENCE

Jun 26, 2007 - May 20, 2008	Jubilant Organosys Limited, Noida, India
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## AWARDS AND FELLOWSHIPS

- CSIR-NET (Chemical Sciences)
- Project Fellow - UGC Project
- Senior Research Fellow – CSIR
- NCC 'C' Certificate
- MOST Taiwan - Post-Doctoral Fellow
- DST (SERB) India - National Post-Doctoral Fellow
- Royal Society of Chemistry-Best Poster Award (RAOBC IISER Mohali)
- Best Oral Presentation Award - 1st International Conference of ISCA - Rohtak Chapter

## MEMBERSHIP OF SOCIETIES

- Indian Science Congress Association (ISCA), Kolkata - Life Member (L35012)
- Chandigarh Region Innovation and Knowledge Cluster (CRIKC), Chandigarh -Life Member

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## RESEARCH PUBLICATIONS

**2024** Metal-Free Synthesis of 2-Aminothiazole Functionalized Imidazo[1,2-a]pyridines as Antibacterial Agents. S. Devi, A. Sharma, V. Karoshi, **Sunil Kumar**,\* A. Kumar, and J. Sindhu. Indian Journal of Heterocyclic Chemistry, 2024, 34, 23-34. DOI 10.59467/IJHC.2024.34.23 [ISSN 2456-4311][IF 0.60]

**2023** Formulation optimization of pH-sensitive liposomes based drug delivery of Carboplatin and anti-proliferative evaluation against A549 (human lung carcinoma) cell line. P. Aneja, P. Negi, S. Aneja, S. R. Garad, **Sunil Kumar**\*. Main Group Chemistry, 2023, 22(3), 403-421. DOI 2023.10.3233/MGC-220078 [ISSN 1745-1167][IF 1.50]

**2022** Performance-based natural rubber composites reinforced with jute fibers and nano-silica: thermal, morphological, and mechanical studies with statistical optimization. S. Kumar, S. Lal, G. Jagdeva, S. Arora, P. Kumar, R. K. Soni, H. Kumar, **Sunil Kumar**, S. Panchal. Iranian Polymer Journal. 2023, 32, 609-619. DOI 10.1007/s13726-023-01148-x [ISSN 1735-5265][IF 2.61]

**2021** (i) Experimental and Computational Validation of Structural Features and BSA Binding Tendency of 5-Hydroxy-5-trifluoromethyl-3-arylpyrazolines. R. Kataria, D. Vashisht, P. Rani, J. Sindhu, **Sunil Kumar**, S. Sharma, S. C. Sahoo, V. Kumar, S. K. Mehta. Chemistry Select, 2021, 6(38), 10324-10335. DOI 10.1002/slct.202102669 [ISSN 2365-6549][IF 2.10]  
(ii) Exploration of synthesis, structural aspects, DFT studies and bio-efficacy of some new DHA-benzohydrazide based copper(II) complexes. Richa, **Sunil Kumar**, J. Sindhu, P. Choudhary, S. Jaglan, E. Zangrando, R. Kumar, S. C. Sahoo, V. Kumar, S. K. Mehta, R. Kataria; Journal of Molecular Structure, 2021, 1228. 129460. DOI 10.1016/j.molstruc.2020.129460 [ISSN 0022-2860][IF 3.19]

**2020** Post-Pictet-Spengler Cyclization (PPSC): A Strategy to Synthesize Polycyclic  $\beta$ -Carboline-Derived Natural Products and Biologically Active N-Heterocycles. R. Singh, **Sunil Kumar**, M. T. Patil, C.-M. Sun, and D. B. Salunke; Advanced Synthesis & Catalysis 2020, 362, 4027–4077. DOI 10.1002/adsc.202000549 [ISSN:1615-4169][IF 5.85]

**2019** (i) Thiazole: A Privileged Motif in Marine Natural Products. **Sunil Kumar**, R. Aggarwal; Mini Reviews in Organic Chemistry, 2019, 16, 26-34. DOI 10.2174/1570193X15666180412152743 [ISSN: 1875-6298][IF 2.13]  
(ii) Crystal structure, Hirshfeld surface, DFT and BSA binding studies of dihydropyrazole-1-thiocarboxamides. R. Kataria, D. Vashisht, J. Sindhu, S. Sharma, S. K. Mehta, R. Kumar, S. C. Sahoo, **Sunil Kumar**, F. Qu, F. A. Afkhami, A. Gupta; Journal of Molecular Structure, 2019, 1196, 662-675. DOI 10.1016/j.molstruc.2019.06.100 [ISSN 0022-2860][IF 3.19]

**2018** (i) Regioselective Synthesis of Angular Isocoumarin-selenazole: A Benzoselenazole-directed, Site-specific, Ru-catalyzed C(sp<sup>2</sup>)-H Activation. S. Dhole, J.-Y. Liao, **Sunil Kumar**, D. B. Salunke, and C.-M. Sun; Advanced Synthesis & Catalysis 2018, 360, 942-950. DOI 10.1002/adsc.201701256 [ISSN:1615-4169][IF 5.85]

(ii) A concise and efficient route to the total synthesis of bacillamide and its analogues. **Sunil Kumar**, R. Aggarwal; ARKIVOC 2018, iii, 354-361. DOI 10.24820/ark.5550190.p010.362 P

[ISSN:1551-7012][IF 1.25]

(iii) Design, synthesis, DFT, docking studies andADME prediction of some new coumarinyl linked pyrazolylthiazoles: Potential standalone or adjuvant antimicrobial agents. **Sunil Kumar**, V. Saini, I. K. Maurya, J. Sindhu, M. Kumari, R. Kataria, V. Kumar; PlosOne 2018, 13(4), 1-23. DOI 10.1371/journal.pone.0196016

[ISSN:1932-6203][IF 3.24]

**2017** (i) Diversity-Oriented Synthesis of Coumarin-Linked Benzimidazole via a One-pot Three-step Intramolecular Knoevenagel Cyclization. P.-H. E. Yao, **Sunil Kumar**, Y.-L. Liu, C.-P. Fang, C.-C. Liu, C.-M. Sun; ACS Combinatorial Science 2017, 19, 271-275. DOI 10.1021/acscombsci.7b00004

[ISSN:2156-8944][IF 3.38]

(ii) Enantiospecific Synthesis of Imidazoquinazolin-2-ones via Base-Catalyzed Tandem Cyclization. **Sunil Kumar**, P.-H. Ho, I. J. Barve, C.-M. Sun; Chemistry Select 2017, 2, 8917-8921.

[ISSN:2365-6549][IF 2.10]

**2016** Solvent-free synthesis of bacillamide analogues as novel cytotoxic and anti-inflammatory agents. **Sunil Kumar**, R. Aggarwal, V. Kumar, R. Sadana, B. Patel, P. Kaushik, D. Kaushik; European Journal of Medicinal Chemistry 2016, 123, 718-726. DOI 10.1016/j.ejmech.2016.07.033

[ISSN:0223-5234][IF 6.51]

**2015** Synthesis of some 2-(3-alkyl/aryl-5-trifluoromethylpyrazol-1-yl)-4-(coumarin-3-yl)thiazoles as novel antibacterial agents. **Sunil Kumar**, R. Aggarwal, C. Sharma; Synthetic Communications, 2015, 17, 2022-2029.

[ISSN:1532-2432][IF 1.89]

**2013** Synthesis and pharmacological evaluation of some novel 2-(5-hydroxy-5-trifluoromethyl-4,5-dihydropyrazol-1-yl)-4-(coumarin-3-yl)thiazoles. R. Aggarwal, **Sunil Kumar**, P. Kaushik, D. Kaushik, G. K. Gupta; European Journal of Medicinal Chemistry 2013, 62, 508-514.

[ISSN:0223-5234][IF 6.51]

**2012** (i) Sodium carbonate-mediated facile synthesis of 4-substituted-2-(3,5-dimethylpyrazol-1-yl)thiazoles under solvent-free conditions. R. Aggarwal, **Sunil Kumar**, S. P. Singh; Journal of Sulfur Chemistry 2012, 33, 521-525.

[ISSN:1741-5993][IF 2.68]

(ii) Role of  $\alpha$ -functionalized carbonyl compounds, solvents and pH on the composition of products. R. Aggarwal, **Sunil Kumar**, S. P. Singh; Indian Journal of Heterocyclic Chemistry 2012, 22, 135-140.

[ISSN:0971-1627][IF 0.32]

(iii) Synthesis and antibacterial activity of some 4-(coumarin-3-yl)/aryl-2-(3,5-dimethylpyrazol-1-yl)thiazoles. R. Aggarwal, **Sunil Kumar**, S. P. Singh; Indian Journal of Heterocyclic Chemistry 2012, 21, 331-336.

[ISSN:0971-1627][IF 0.32]

**2011** Synthesis and antibacterial activity of some 5-hydroxy-5-trifluoromethyl-4,5-dihydropyrazol-1-thiocarboxamides, 3-trifluoromethylpyrazol-1-thiocarboxamides and 4-aryl-2-(5(3)-trifluoromethyl-1-pyrazolyl)thiazoles. R. Aggarwal, R. Kumar, **Sunil Kumar**, G. Garg, R. Mahajan, J. Sharma; Journal of Fluorine Chemistry 2011, 132, 965-972.

[ISSN:0022-1139][IF 2.32]

## BOOK CHAPTERS

**2023** A Book Chapter entitled "C-H ACTIVATION: A SUSTAINABLE APPROACH FOR THE SYNTHESIS OF FUNCTIONALIZED HETEROCYCLES" in "Advances in Organometallic Chemistry" Published by Elsevier. Accepted. Authors List: I. Sharma, M. Kumari, G. Poonia, R. Kataria, \* **Sunil Kumar**\*

**2022** A Book Chapter entitled “Indole based prostate cancer agents” in Book “Heterocyclic Anticancer Agents” published by Berlin, Boston: De Gruyter, 2022 and edited by Bimal Krishna Banik and Bubun Banerjee. Authors List:**Sunil Kumar**, M.T. Patil and D. B. Salunke. Chapter 14, Page Numbers 479-503. Physical Sciences Reviews, 2022, DOI:10.1515/9783110735772

**2016** A Book Chapter entitled "Thiazole: A Privileged Scaffold in Drug Discovery" in "CHEMICAL DRUG DESIGN" Published by De Gruyter. Chapter 11; Page numbers 243-276. Authors List: **Sunil Kumar**, M.T. Patil, R. Kataria, D. B. Salunke. DOI: 10.1515/9783110368826-013

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### **INTERNATIONAL CONFERENCES - RESEARCH PRESENTATION**

**2023** Indian Science Congress 2023 [ISC-2023] Organized by R.T.M. University, Nagpur on Jan 03-07, 2023. Title: An efficient one-pot synthesis of 2-(coumarin-3-yl)benzimidazole through Knoevenagel–Intramolecular Cyclization

**2022** International Conference on Emerging Trends in Science and Technology [ICETST-2022] Organized by Punjab Engineering College (Deemed to be University), Chandigarh on June 10-11, 2022. Title: Enantiospecific Synthesis of Imidazoquinazolin-2-oneDerivatives via Base-Catalyzed Tandem Cyclization

**2020** Rohtak Chapter of Indian Science Congress Association on "Science & Technology: Rural Development" at Maharishi Dayanand University, Rohtak, From March 4-5, 2020. Synthesis and Characterization of Tricyclic Linear and Angular Isocoumarinoselenazoles via Ru Catalyzed Alkyne Annulation

**2019** "Recent Advances in Organic and Bio-organic Chemistry" held at IISER, Mohali from Mar 22-24, 2019 & sponsored by Royal Society of Chemistry and IISER Mohali. Synthesis of 2-Aminoisocoumarinoselenazoles via Transition Metal-free Intramolecular C-Se Bond Formation and Ru(II)-catalyzed Alkyne Annulation

**2018** "19th Tetrahedron Symposium" Celebrating the 25th Anniversary of Bioorganic and Medicinal Chemistry held at Riva del Garda, Italy from 26-29 June, 2018. Title Regioselective synthesis of 2-aminoisocoumarinoselenazoles via metal-free intramolecular C-Se bond formation and Ru(II)-catalyzed regioselective C-H activation

**2013** "Recent Advances in Chemical Science", An International Conference held at Arya P.G. College, Panipat from Feb. 24-26, 2013.

**2012** "Chemical Constellation Cheminar-2012" Theme: Chemistry for Sustainable Development and Innovations (An International Conference) held at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar from Sep. 10-12, 2012.

### **NATIONAL CONFERENCES - RESEARCH PRESENTATION**

**2018** CHASCON 2018 held at Department of Chemistry, Panjab University, Chandigarh from Feb 12-14, 2018. Title: An efficient route to the total synthesis of bacillamide A and its analogues.

**2015** "Professor Ram Chand Paul: National Symposium on Innovation in Chemical Sciences" held in Department of Chemistry and Centre for Advance Studies in Chemistry at Panjab University during 20-21 March, 2015.

**2015** National Seminar on "Recent Trends in Physics and Chemistry" held at S.A. Jain College, Ambala City on Mar 25, 2015.

**2013** "100<sup>th</sup> Indian Science Congress" held at Calcutta University, Kolkata from Jan. 3-7, 2013.

**2011** "98th Indian Science Congress" held at SRM University, Chennai during Jan. 3-7, 2011.

**2010** "The National Conference on Green and Sustainable Chemistry" held at Birla Institute of Technology and Science, Pilani during Feb. 19-21, 2010.

### **INVITED TALKS**

**2022** International Conference on "New Trends in Chemical Research" (ICNTCR-2022) organized by Department of Chemistry, SUS Govt. College Matak Majri, Karnal on April 29-30, 2022

**2018** Futuristic Aspects in Chemical Sciences & Technology (FACT) 2018 held at SAIF/CIL, Panjab University, Chandigarh from April 28-29, 2018 (Invited talk).

**2017** (i) Invited lecture on "Spectroscopic Tools for Analysis of Organic Compounds" in Department of Chemistry, Rayat Bahra University on Sep 19, 2017.  
(ii) "National Seminar on Innovative Practices in Chemistry" held at S.A. Jain (P.G.) College, Ambala City on Feb 23, 2017 (Invited talk).

### **WORKSHOPS/FACULTY DEVELOPMENT PROGRAM**

**2021** (i) Participated in Faculty Development Program on "Accelerating Innovations in Material Science - Surface Characterization" organized by Department of Chemistry, BMS Institute of Technology & Management, Bengaluru, India from May 18-22, 2021.  
(ii) Participated in one week Professional Development Program (PDP) organized by J. C. Bose University of Science and Technology, YMCA Faridabad from June 28 - July 03, 2021.

**2019** (i) Global Initiative for Academic Networks (GIAN) for the Course "Primary Immunodeficiency Diseases From Bench to Bedside" held at Panjab University, Chandigarh from Feb 18-22, 2019.  
(ii) Participated in "SPARC International Workshop on Vaccine Chemistry and Immunology" held at Panjab University, Chandigarh from Apr 16, 2019  
(iii) Participated in Faculty Development Program on "Use of ICT in Life Sciences" jointly organized by NIT Patna and Maharaja Agrasen University from Nov 29 - Dec 7, 2019

**2017** Global Initiative for Academic Networks (GIAN) for the Course "Chemical Biology and Drug Discovery" held at NIPER Mohali from Oct 24-30, 2017

### **FACULTY INDUCTION PROGRAM**

**2022** Participated in 8th Faculty Induction Program organized by Jamia Millia Islamia, New Delhi from 15th February to 16th March 2022

### **PARTICIPATION IN OTHER PROGRAMS**

**2022** National Seminar on National Education Policy - 2020 organized by Jamia Millia Islamia, New Delhi on 9th - 10th March 2022

**2022** University Distinguished Lecture titled “Science,Technology and Innovation Policy 2020: A Transformative S&T Agenda”delivered by Prof. SandeepVerma, Secretary, SERB, DST

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### **SPONSORED PROJECT**

**2017** NATIONAL POST-DOCTORAL FELLOW: NPDF/2017/003021

Project Title: Synthesis of Novel Heterocycles of Biological Interest via Unconventional Pictet-Spengler Reaction

Awarded by: Science and Engineering Research Board (SERB), DST, New Delhi

Duration: July 2017 - July 2019

Grant: INR 19,20,000/-

**2023** University Seed Money Grant: R&D/SG/2023/1588

Project Title: Exploration of Anti-Cancer Potential of Some Novel 3/5-Trifluoromethylpyrazole Derivatives

Awarded by: J. C. Bose UST, YMCA, Faridabad

Duration: August 2023 - August 2025

Grant: INR 2,00,000/-