# Karan Singh, PhD

Associate Professor
Department of Chemistry,
Indira Gandhi University,
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AADHAR No. 575620006527

## Summary of Achievements and Expertise

* Published/Accepted 37 peer-reviewed scientific articles and Book Chapters (2 Under review)
* Submitted two research proposal to the Government Agencies for research grant
* Research guidance: M.Sc. Chemistry – 13 Completed and 1 Ongoing • PhD – 3 Completed and 1 Ongoing
* Served on multiple boards and committees to ensure that the needs of fellow graduate and postgraduate students were met
* ~7.5 years of Research & Development experience in GVK Biosciences Pvt. Ltd. Hyderabad (CRO) and lead a team of 27 Chemists along with 1 Senior Scientist and 1 Scientist
* ~2.5 years of experience in New Chemical Entity at Lupin Limited (Research Park) Pune (Maharashtra)
* ~11 years of experience in teaching at various graduate and post graduate levels
* Worked as a Research Assistant in Collaborative project with Ranbaxy Lab during PhD
* Holds the merit of working for major pharmaceutical companies across USA and Europe
* Well versed with Scientific Software and Laboratory Safety Practices
* Familiar with state-of-the-art research techniques, technologies & systems
* Gathered fair understanding in ensuring that the activities are performed in a timely / accurate manner and according to the policies and procedures
* An effective communicator with skills in troubleshooting, team building, problem solving & abilities to work under pressure
* Obtained research experience in a variety of industrial and academic environments including Design & Synthesis of Small Molecules (Custom Synthesis, Building Blocks, Reference Compounds and Impurity Synthesis), Parallel Medicinal Chemistry, Library Synthesis, Structure Elucidation using Analytical Techniques, Group & Project Management • Competent in Synthetic Organic Chemistry encompassing design, costing, synthesis, purification of chemical intermediates and target compounds

## Education

* **DOCTOR OF PHILOSOPHY IN CHEMISTRY (2003)** Kurukshetra University Kurukshetra, Haryana, INDIA; **Advisors:** Professor S N Dhawan and Professor Pawan K Sharma

* **Qualified CSIR-UGC National Eligibility Test (1999)**

* **MASTER OF SCIENCE IN ORGANIC CHEMISTRY (1997)** (1st Division) Kurukshetra University Kurukshetra, Haryana, INDIA

* **BACHELOR OF SCIENCE (1995)** with Botany, Zoology, Chemistry (1st Division) RKSD College Kaithal (Affiliated to Kurukshetra University Kurukshetra) Haryana, INDIA

## PROFESSIONAL EXPERIENCE

* **ASSOCIATE PROFESSOR (March 2021-till date)** Department of Chemistry, Indira Gandhi University, Meerpur, Rewari, Haryana 122502, India

* **PROFESSOR and DEAN R & D (June 2020 – March 2021)** Lingaya's Vidyapeeth, Nachauli, Jasana Road, Old Faridabad, Faridabad, Haryana 121002

* **PROFESSOR and HoD (July 2019 – June 2020)** Department of Chemistry, Akal College of Basic Sciences, Eternal University, Baru Sahib, Sirmaur, Himachal Pradesh, INDIA

  **Responsibilities:** Teaching (Postgraduate Level) • Research guidance at Master and PhD Level

* **ASSOCIATE PROFESSOR and HoD (April 2014 – June 2019)** Department of Chemistry, Akal College of Basic Sciences, Eternal University, Baru Sahib, Sirmaur, Himachal Pradesh, INDIA

  **Responsibilities:** Teaching (Graduate and Postgraduate Level) • Research guidance at Master and PhD Level

* **ASSOCIATE PRINCIPAL SCIENTIST (April 2011 - March 2014) • SENIOR SCIENTIST (October 2007 - March 2011)• SCIENTIST (November 2006 - September 2007)** Chemistry Service Division, GVK Biosciences Pvt. Ltd., Hyderabad, Telengana, INDIA

  Worked for several US and European Clients & serve their chemistry needs by following below Collaboration Models
  - Full time equivalent (FTE)
  - Fee for service (FFS) per library
  - Single price per compound

  **Responsibilities:**
  - Interaction with the clients periodically for project requirements, clarifications and updates
  - Synthesis of molecules as per the defined route or define the route to synthesize the molecules
  - Building strong customer relations both internally and externally
  - In charge for Projects & manage a group of 27 chemists (1 Senior Scientist and 1 Associate Scientist)
  - Project Management: Designing, planning & execution of projects in a cost effective manner
  - Giving guidance to the associated group in terms of scientific & technical skills
  - Doing literature collection & identifying suitable reaction conditions

- Analyzing the spectral data & taking decisions accordingly with respect to projects requirement
- Allotment of work to the associated group & making changes as per the need
- Preparing and presenting weekly, monthly and final project reports
- Quarterly review with Clients

* **RESEARCH SCIENTIST (July 2006 - October 2006) • SENIOR RESEARCH ASSOCIATE (May 2004 - June 2006)** New Chemicals Entity Department (Medicinal Chemistry, Anti-diabetes Division)Lupin Ltd. (Research Park), Pune, INDIA

  - Optimization, Synthesis, Purification and Characterization of novel anti-diabetic molecules as PPARγ activator on the basis of their SAR. The effort was devoted towards synthesis of analogues, thereby increasing solubility and enhancing the bioavailability of the compounds that have shown promising activity
  - Carried out the synthesis of over 72 NCE's as potential drug candidates
  - Scale up of 6 anti-diabetic molecules involving multiple steps in gram scale for *in vivo* testing.

* **RESEARCH SCIENTIST (December 2003 - April 2004)** Dexter Chemicals India Pvt. Ltd. Kurukshetra, INDIA

* **LECTURER IN CHEMISTRY (October 2001 - December 2003)** B. S. Anangpuria Institute of Technology and Management, Faridabad, Haryana, INDIA

* **RESEARCH ASSISTANT in Collaborative Research Project between Ranbaxy Research Laboratory Gurgaon and K.U. Kurukshetra (July 1998 - September 2001)** Chemistry Department, Kurukshetra University, Kurukshetra, Haryana, INDIA

  Prepared ~72 Compounds (2,4-disubstituted thiazole molecules) as potential drug candidates and shipped to Ranbaxy Research Laboratory Gurgaon

* **LECTURER IN CHEMISTRY (December 1997 - July 1998)** Sri Krishna Institute of Engineering and Technology, Kurukshetra, Haryana, INDIA

## RESEARCH EXPERIENCE

**Drug Discovery – Lupin Ltd. (Research Park)**

* Synthesized a series of disaccharide molecules on milligram scale as potential anti-inflammatory agents
* Synthesized two series of Triclosan derivatives as potent inhibitors of drug sensitive and drug-resistant Mycobacterium tuberculosis
* Synthesized Quinoline derivatives as potent inhibitors of drug sensitive and drug-resistant Mycobacterium tuberculosis
* Optimization, Synthesis, Purification and Characterization of novel anti-diabetic molecules as PPARγ activator on the basis of their SAR. The effort was devoted towards synthesis of analogues, thereby increasing solubility and enhancing the bioavailability of the compounds that have shown promising activity
* Scale up of 6 anti-diabetic molecules involving multiple steps in gram scale for in vivo testing.

**Chemistry Service – GVK Biosciences Pvt. Ltd.**

- **Major areas of Chemistry Service in which I worked**: Synthetic Chemistry•Custom Synthesis •Library Design and Synthesis (Parallel Chemistry)•Impurity Synthesis•Building Blocks and Scaffold Synthesis•Reference Compounds•Discovery Chemistry

- To speed up Drug Discovery research programs of international clients in identifying pre-clinical candidates, worked on the focused arrays of 20-100 compounds in 10-50 mg scale with chemical purities of ≥95% (by LC-MS and NMR) to get the Hits Compound followed by structural modification of hits compound to improve potency and selectivity to get Hit to Lead

- Custom synthesis of novel organic compounds in milligrams to multi-gram quantities for the areas of medical research, chemical / pharmaceutical development, lead compound / pro-drug development, flavors, fragrances and agro chemicals were executed

- **The Collaboration Models in which I worked**: Full time equivalent (FTE) •Fee for service (FFS) per library •Single price per compound

- Synthesized lot of Building blocks and scaffolds which were either very costly or no vendor was available.

- Besides this, gain extensive experience in impurity synthesis, reference compounds and various techniques used in the synthetic chemistry

## TEACHING SUMMARY

| Under Graduate Level | Post Graduate Level | Ph.D. Level |
|---|---|---|
| ∗ Basic Organic Chemistry | ∗ Natural Products | ∗ Structure From Spectra |
| ∗ Organic Chemistry | ∗ Organic Synthesis | ∗ Organic Chemistry |
| ∗ Stereochemistry and Reaction Mechanism | ∗ Organic Spectroscopy | ∗ Research Methodology |
| | ∗ Aromaticity and Nucleophilic substitution reactions | |
| | ∗ Reaction Mechanism and Stereochemistry | |

## RESEARCH GUIDANCE

### M.Sc. Students

1. Mr R Kondalu (2011); Title of Thesis, “Synthesis and Characterization of methyl 2-formylpyridine-6-carboxylate – A basic parent nucleus for the synthesis of Telomerase Inhibitor”. Year of registration: 2011
2. Mr Rakesh Chauhan (BS13MSC001); Title of Thesis, “Phytochemical investigation of *Tinospora cordifolia* for the biologically active compounds”. Year of registration: 2013
3. Mr Sumit Sood (BS13MSC002); Title of Thesis, “Synthesis, Characterization and Biological Evaluation of some Potent Benzimidazole based 2-aminothiazoles”. Year of registration: 2013
4. Ms Himanshi (BS14MSC001); Title of Thesis, “Synthesis and Characterization of Pyrazole Based N-Protected B-Amino Ketones”. Year of registration: 2014

5. Ms Rashi Arora (BS14MSC002); Title of Thesis, “Synthesis and Characterization of Novel 3,4-Dihydro Quinolinone Derivatives By Beckmann/Schmidt Rearrangement”. Year of registration: 2014
6. Ms Meena Kumari (BS15MSC004); Title of Thesis, “Synthesis and Characterization of Some Novel Pyrazole Derivatives”. Year of registration: 2015
7. Ms Aneet Kamal Kaur (BS15MSC001); Title of Thesis, “Synthesis of novel tetrahydroindazole derivatives via Vilsmeier-Haack reaction”. Year of registration: 2015
8. Ms Harshita Phougat (BS16MSCH003); Title of Thesis, “Synthesis, isolation and characterization of (Pyrazol-4-yl)acetic acid derivatives”. Year of registration: 2016
9. Ms Navjot Kaur (BS17MSCH002); Title of Thesis, “Synthesis, Isolation and Characterization of some Novel Indeno based Pyrimidine Sulphonamide Derivatives”. Year of registration: 2017
10. Ms Pawandeep Kaur (BS17MSCH003); Title of Thesis, “Synthesis, isolation and characterization of novel indeno[1,2-d] pyrimidine-2-amines.”. Year of registration: 2017
11. Ms Pratibha (BS17MSCH004); Title of Thesis, “Synthesis, isolation and characterization of novel indeno based pyrimidine urea derivatives”. Year of registration: 2017
12. Ms Harpreet Kaur (BS18MSCH001); Title of Thesis, “synthesis, isolation and characterization of some novel 1,4-dihydroindeno[1,2-c]pyrazole-3-carboxylic acid derivatives”. Year of registration: 2018
13. Ms Kajal Sharma (BS18MSCH001); Title of Thesis, “Synthesis, isolation and characterization of some novel chalcones using 1H-pyrazole-4-carbaldehydes”. Year of registration: 2018

## Ph.D. Students

1. Ms Renu Bala (BS12PSCH002); Title of Thesis, “Synthesis, Characterization and biological evaluation of 4-functional pyrazoles and their derivatives”. Year of registration: 2012; Awarded 2018
2. Ms Poonam Kumari (BS14PSCH001); Title of Thesis, “Synthesis and spectral studies of 4-functional pyrazolylthiazoles and their biological investigation”. Year of registration: 2014; Submitted 2020
3. Mr Sumit Sood (BS15PSCH001); Title of Thesis, “Synthesis of some novel pyrazole derivatives using 4-formylpyrazoles as scaffold”. Year of registration: 2015; Submitted 2020

## SKILLS ACQUIRED

* **Spectroscopic Techniques:** Well versed with spectroscopic techniques like NMR, IR, HPLC, LCMS and MS.

* **Computers:** Applications of computers like

    - Chemical Structure Drawing in Chemdraw, ISIS Draw, Chemword

- Word Processing using MS Word, Power Point etc.
- Literature Search by using MDL Bilstein, Scifinder, Reaxys etc.

## AWARD AND RECOGNITION HIGHLIGHTS

* Recipient of GVK BIO Value Star Award for Customer Focus from GVK Biosciences Pvt Ltd in 2007
* Attained Certificate of Vendor Appreciation from a big pharmaceutical company for problem solving, execution of projects, team management and good communication skills in 2010
* Recipient of Team Award Certificate from GVK Biosciences Pvt. Ltd. in 2013
* Recipient of **Outstanding Teacher Award** from Eternal University in 2018

## PROFESSIONAL ENHANCEMENT

* Workshops Attended
    - Good Laboratory Practices at ConnectIT Solutions, Hyderabad in 2011
    - E-Mail Writing Skills at GVK Biosciences 2013
    - Business Communication Skills at Lupin Limited 2005
    - Relationship Management at GVK Biosciences 2008

* Training Attended
    - Accent Neutralization at GVK Biosciences 2010

## FELLOWSHIP

* **Junior Research Fellowship** (July 1998 to Sep. 2001)
  (From Collaborative Research Project between Ranbaxy Research Laboratory Gurgaon and K.U. Kurukshetra)

## MEMBERSHIP- SCIENTIFIC SOCIETIES/BOARDS

| | |
|---|---|
| Life Member | The Indian Science Congress Association (INDIA) (Membership No. L29124) |
| Member | Conference Technical Committee of ICEIM 2016 at Kuala Lumpur, Malaysia (Sept. 2016) |
| Member | Conference Organizing Committee of AFST-2017 at EU, Baru Sahib, H.P. (March 2017 |

## OTHER ACTIVITIES

* **Curriculum Development**
  Developed program structure and course curriculum for B.Sc. (Hons.) Chemistry, B.Sc. Medical & Non-Medical, M.Sc. Chemistry and Ph.D. Chemistry at Eternal University, Baru Sahib (from 2014-2017). Also designed course content for Environmental Chemistry for M.Sc. Environmental Science

* **SR, IC & IPR document**
  Prepared Sponsored Research, Industrial Consultancy and Intellectual Property Rights document at University Level

- **Reviewer**
  Reviewing experience of more than 10 research articles/reviews from Springer, Elsevier, Tailor Francis and other reputed publications

- **Paper Setter**
  Set question papers for MM University, Mullana, Ambala

- **External Examiner**
  Acted as an external practical examiner at Apeejay Engineering College, Sohna, Gurgaon; MM University, Mullana, Ambala

## PUBLICATIONS

## RESEARCH/ REVIEW ARTICLES

**2002**

1. Synthesis and characterization of some novel 4-formyl pyrazolylthiazoles of potential medicinal interest using Vilsmeier-Haack reaction. Pawan K Sharma, **Karan Singh**, S N Dhawan & S P Singh. ***Indian J Chem,*** **41A** (2002) 2071-2075. [ISSN 0975-0975](IF: 0.489) (NAAS: 6.73)

**2005**

2. Vilsmeier-Haack reaction on hydrazones: a convenient synthesis of 4-formylpyrazoles. **Karan Singh*,** Suman Ralhan, Pawan K Sharma & S N Dhawan**.** ***J Chem Res****,* (2005) 316-318. [ISSN 1747-5198](IF: 0.668) (NAAS: 6.65)

3. Synthesis and characterization of some novel indeno[1,2-c]pyrazoles. **Karan Singh*,** Pawan K Sharma, S N Dhawan & S P Singh. ***J Chem Res****,* (2005) 526-529. [ISSN 1747-5198](IF: 0.668) (NAAS: 6.65)

**2011**

4. Synthesis and anti-inflammatory evaluation of some pyrazolo[3,4-*b*]pyridines. Pawan K. Sharma, **Karan Singh**, Surender Kumar, Pawan Kumar, S. N. Dhawan, Sukhbir Lal, Holger Ulbrich and Gerd Dannhardt. ***Medicinal Chemistry Research****.* (2011) 20 (2), 239-244. [ISSN: 1054-2523] (IF: 1.783) (NAAS: 7.28)

**2014**

5. Synthesis, characterization and antimicrobial study of some benzenesulfonamide based bipyrazoles. **Karan Singh*** and Pawan K Sharma. ***International Journal of Pharmacy and Pharmaceutical Sciences*** (2014) 6 (10), 345-351. [ISSN: 0975-1491]

**6.** Synthesis, characterization and antimicrobial study of some novel fluorine based 2-aminothiazoles. **Karan Singh*** and Pawan K Sharma. ***International Journal of Pharmacy and Pharmaceutical Sciences*** (2014) 6 (10), 429-433. [ISSN: 0975-1491]

**2016**

7. **Karan Singh*** (2016) Application of indan-1,3-dione in heterocyclic synthesis. ***Curr. Org. Syn*** 13(3), 385-407. doi:10.2174/1570179412666150817222851. [ISSN: 1875-6271] (IF: 2.05)(NAAS: 7.92)

8. Simranjeet Singh, Nasib Singh, Vijay Kumar, Shivika Datta, Abdul Basit Wani, Damnita Singh, **Karan Singh**, Joginder Singh (2016) Toxicity, monitoring and biodegradation of the fungicide carbendazim. *Environmental Chemistry Letters*, 14, 317-329. [ISSN: 1610-3653](IF: 5.922)(NAAS: 9.59).

**2017**

9. Nasib Singh, Tanuja Mishra, **Karan Singh**, Joginder Singh (2017) Microbial and Non-microbial Pyrogens in Healthcare Products: Risks, Quality Control and Regulatory Aspects. ***Applied Clinical Research, Clinical Trials and Regulatory Affairs*** 4(1): 4 -15. doi: 10.2174/2213476X03666160530151854. [ISSN: 2213-4778]

10. Yadagiri Pulipati, Venkateshwarlu Gurram, S. Vijaya Laxmi, Yennam, Satyanarayana, **Karan Singh**, Vinod Kumar, Somesh Sharma, Narender Pottabathini & Vijaya Bhaskara Reddy Iska (2017): Suzuki-Miyaura Coupling of Quinazolines Containing an Unprotected $NH_2$ Group: Synthesis and Biological Testing of Quinazoline Derivatives, **Synthetic Communications**, 47(12), 1142-1150. DOI: 10.1080/00397911.2017.1315672 [ISSN: 0039-7911] (IF: 1.796) (NAAS: 7.13).

11. **Karan Singh*** (2017) Ionic Liquids: An Emerging Tool for an Improved Organic Synthesis. **MOJ Biorg Org Chem** 1(2), 22-23. DOI: 10.15406/mojboc.2017.01.00007. [ISSN: 2574-819X]

**2018**

12. Rashi Arora, Renu Bala, Poonam Kumari, Sumit Sood, Vinod Sangwan, Nasib Singh, **Karan Singh*** (2018) Synthesis of some bicyclic lactams via Beckmann rearrangement and their antimicrobial evaluation. **Current Bioactive Compounds**, 14(4), 428-433. doi: 10.2174/1573407213666170703145729 [CiteScore: 0.50; SJR: 0.226] [ISSN: 1875-6646].

13. Sumit Sood, Renu Bala, Vinod Kumar, Nasib Singh, **Karan Singh*** (2018) Iodine mediated synthesis of thiabendazole derivatives and their antimicrobial evaluation. **Current Bioactive Compounds**, 14(3), 273-277. doi: 10.2174/1573407213666170407160418 [CiteScore: 0.50; SJR: 0.226] [ISSN: 1875-6646].

14. Rashi Arora, Renu Bala, Poonam Kumari, Sumit Sood, Ajar Nath Yadav, Nasib Singh, **Karan Singh*** (2018) Schmidt Reaction on Substituted 1-Indanones / N-Alkylation: Synthesis of Benzofused Six-membered Ring Lactams and their Evaluation as Antimicrobial Agents. Letters in Organic Chemistry, 15(7), 606-613. [ISSN: 1570-1786] [IF: 0.779; SJR: 0.25] (NAAS: 6.73)

15. Renu Bala, Poonam Kumari, Sumit Sood, Vinod Kumar, Nasib Singh and **Karan Singh*** (2018) Phthaloyl dichloride - DMF mediated synthesis of benzothiazole based 4-formylpyrazole derivatives: Studies on their antimicrobial and antioxidant activities. Journal of Heterocyclic Chemistry 55(11), 2507-2515. doi: 10.1002/jhet.3282[ISSN:1943-5193][IF: 1.143] (NAAS: 6.89)

**2019**

16. Tanuja Mishra, Harcharan Singh Dhaliwal, **Karan Singh** and Nasib Singh (2019) Shilajit (Mumie): Current Status of Biochemical, Therapeutic and Clinical Advances. **Current Nutrition & Food Science** 15(2), 114-130. doi: 10.2174/1573401313666170823160217 [Cite Score: 0.58; SJR: 0.205] [ISSN: 2212-3881].

17. Renu Bala, Poonam Kumari, Sumit Sood and **Karan Singh*** (2019) 4-Formylpyrazoles: Applications in organic synthesis. **Mini-Reviews in Organic Chemistry** 16(2), 193-203. doi: 10.2174/1570193X15666180712121527 [IF: 1.824] [ISSN: 1875-6298].

18. Aneet Kamal Kaur, Renu Bala, Poonam Kumari, Sumit Sood and **Karan Singh*** (2019) Microwave Assisted Vilsmeier-Haack Reaction on Substituted Cyclohexanone hydrazones: Synthesis of Novel 4,5,6,7-Tetrahydroindazole Derivatives. **Letters in Organic Chemistry** 16(3), 170-175. doi: 10.2174/1570178615666180917101637 [ISSN: 1570-1786 ] [IF: 0.779; SJR: 0.25](NAAS: 6.73)

19. Renu Bala, Vandana Devi, Pratibha Singh, Navjot Kaur, Pawandeep Kaur, Anil Kumar, Ajar Nath Yadav and **Karan Singh*** (2019) Regioselective synthesis of Potent 4,5,6,7-Tetrahydroindazole Derivatives via Microwave Assisted Vilsmeier-Haack Reaction and their antioxidant activity evaluation. **Letters in Organic Chemistry** 16(3), 194-201. doi: 10.2174/1570178615666180919120329 [ISSN: 1570-1786 ] [IF: 0.756; SJR: 0.25] (NAAS: 6.73)

20. Renu Bala, Poonam Kumari, Sumit Sood, Harshita Phougat, Anil Kumar and **Karan Singh*** (2019) Pyrazole-4-carboxylic acids from vanadium-catalyzed chemical transformation of Pyrazole-4-carbaldehydes. **Journal of Heterocyclic Chemistry** 56(6), 1787-1793. doi:10.1002/jhet.3546 [ISSN:1943-5193] [IF: 1.48] (NAAS: 7.48)

21. Renu Bala, Poonam Kumari, Sumit Sood, Anil Kumar and **Karan Singh*** (2019). Convenient Vilsmeier-Haack Synthesis of Benzothiazolyl 4-Cyanopyrazoles. **Organic Preparations and Procedures International**, 51(6), 547-552. doi: 10.1080/00304948.2019.1677447 [IF: 1.48] (NAAS: 7.48)

**2020**

22. Poonam Kumari, Sumit Sood, Anil Kumar and **Karan Singh*** (2020) Microwave Assisted Vilsmeier-Haack Synthesis of Pyrazole-4-carbaldehydes. **Journal of Heterocyclic Chemistry** 57(2), 796-804. doi: 10.1002/jhet.3824 [ISSN:1943-5193] [IF: 1.48] (NAAS: 7.48)

23. Sumit Sood, Poonam Kumari, Ajar Nath Yadav, Anil Kumar and **Karan Singh*** (2020) Microwave Assisted Synthesis and Biological Evaluation of Pyrazole-4-carbonitriles as Antimicrobial agents. **Journal of Heterocyclic Chemistry** 57(7), 2936-2944. doi: 10.1002/jhet.4003 [ISSN:1943-5193] [IF: 1.48] (NAAS: 7.48)

24. Sumit Sood, Meena Kumari, Poonam Kumari, Anil Kumar and **Karan Singh*** (2020) Convenient OPC-VH Mediated Synthesis of 4-Functional Pyrazoles. **Organic Preparations and Procedures International.** 52(6), 530-536; DOI:10.1080/00304948.2020.1792228

25. Navjot Kaur, Pratibha Singh, Pawandeep Kaur, Ajar Nath Yadav and **Karan Singh*** (2020) One-pot Multicomponent Synthesis and Antimicrobial Evaluation of Novel Tricyclic Indenopyrimidine-2-amines. **Journal of Heterocyclic Chemistry**. 57(10), 3622-3631. doi: 10.1002/jhet.4081 [ISSN:1943-5193] [IF: 1.48] (NAAS: 7.48)

26. Navjot Kaur, Anil Kumar and **Karan Singh*** (2020) Synthesis of Novel Indenopyrimidine Sulfonamides from Indenopyrimidine-2-amines via SN bond formation. **Polycyclic Aromatic Compounds** (Accepted on 9th August 2020, In Press), DOI: 10.1080/10406638.2020.1809470

27. Vishal Vennu, Prem Saini and **Karan Singh** (2020) The difference in views of various researchers about changes in the new drugs and clinical trial rules in India. Int. J. Res. Pharm. Sci., 2020, 11(4), 7034-7038. doi: 10.26452/ijrps.v11i4.3807 [ISSN: 0975-7538] (Scopus indexed Journal)

**2021**

28. Poonam Kumari, Sumit Sood, Anil Kumar and **Karan Singh*** (2021) VO(acac)2/H2O2 Mediated Oxidation of 1-(thiazol-2-yl)-1H-pyrazole-4-carbaldehydes. Organic Preparations and Procedures International. 53(1), 78-88. doi: 10.1080/00304948.2020.1842114 [IF: 1.48] (NAAS: 7.48)

29. Sonia Mor, **Karan Singh**, Subhash Kumar Wangnoo, Tarunika Bawa, Vikas Dhikav and Varisha Anjum (2021) Practice of Yoga in Patients with Diabetic Peripheral Neuropathy Attending a Tertiary Care Hospital in Northern India: Implications During Coronavirus Disease-19 Pandemic. Innovare Journal of Ayurvedic Sciences. 9(2), 1-4. https://doi.org/10.22159/ijas.2021.v9i2.40542

30. Kour D, Kaur T, Devi R, Yadav A, Singh M, Joshi D, Singh J, Suyal DC, Kumar A, Rajput VD, Yadav AN, **Singh K,** Singh J, Sayyed RZ, Arora NK and Saxena AK. Beneficial microbiomes for bioremediation of diverse contaminated environments for environmental sustainability: present status and future challenges. Environ Sci Pollut Res Int. 2021 Mar 25. doi: 10.1007/s11356-021-13252-7. Epub ahead of print. PMID: 33768457.

31. Harshita Phougat, Vandana Devi, Sanjay Rai, T Shreedhar Reddy and **Karan Singh** (2021) Urea derivatives of Piperazine Doped with pyrazole-4-carboxylic acids: Synthesis and Antimicrobial Evaluation. Journal of Heterocyclic Chemistry. (Submitted)

32. Anil Kumar, Shikha Kashver, Kajal Sharma, Vandana Devi and **Karan Singh** (2021) Synthesis of Novel Pyrazole based Chalcones from 4-formylpyrazoles via C-C bond formation. Polycyclic Aromatic Compounds (Submitted)

## EDITED BOOK

1. CRC Press, Taylor & Francis book *"Functional Pyrazoles: Synthesis and Biological Significances"*.

   **Current Status:** Proposal Accepted

2. CRC Press, Taylor & Francis book "*Triazoles: Synthesis and Biological Significances".*

   **Current Status:** Proposal Accepted

## BOOK CHAPTERS

1. Singh, N., Singh, J. & **Singh, K.** (2018) Small at Size, Big at Impact: Microorganisms for Sustainable Development. In: Microbial Bioprospecting for Sustainable Development. Springer, pp 3-28 [Springer &ISBN 978-981-13-0052-3]

2. Singh N, **Singh K**, Singh J, Dagar SS (2018) Antiparasitics from microorganisms. In: Pharmaceuticals from Microbes (Eds. Arora D et al.). Springer Nature, Singapore Pte Ltd. http://www.springer.com/series/11480, pp 27-47 [Springer International Publishing & ISBN 978-3-030-04674-3]

3. Kour D, Rana KL, Kumar R, Yadav N, Rastegari AA, Yadav AN, **Singh K**, et al. Gene Manipulation and Regulation of Catabolic Genes for Biodegradation of Biphenyl Compounds. New and Future Developments in Microbial Biotechnology and Bioengineering: Elsevier; 2019. p. 1-23 [Elsevier & ISBN 978-0-444-63503-7].

4. Sushma Sharma, Divjot Kour, Kusam Lata Rana, Anu Dhiman, Shiwani Thakur, Priyanka Thakur, Sapna Thakur, Neelam Thakur, Surya Sudheer, Neelam Yadav, Ajar Nath Yadav, Ali A. Rastegari, and **Karan Singh** (2019) Trichoderma: Biodiversity, Ecological Significances, and Industrial Applications. In: Recent Advancement in White Biotechnology through Fungi, Fungal Biology (Eds. A. N. Yadav et al.). Springer Nature Switzerland AG 2019. https://doi.org/10.1007/978-3-030-10480-1-3, pp 85-120 [Springer International Publishing & ISBN 978-3-030-10479-5]

5. Kour D, Rana KL, Yadav N, Yadav AN, Rastagari AA, Singh C, Negi P, **Singh K**, Saxena AK (2019). Technologies for biofuel production: current development, challenges, and future prospects. In: Rastegari AA, Yadav AN, Gupta A (Eds) Prospects of Renewable Bioprocessing in Future Energy Systems [ISBN: 978-3-030-14463-0], Springer International Publishing AG, Switzerland, pp 1-52, https://doi.org/10.1007/978-3-030-14463-0_1 [Springer International Publishing & ISBN 978-3-030-14463-0]

6. Kusam Lata Rana, Divjot Kour, Imran Sheikh, Anu Dhiman, Neelam Yadav, Ajar Nath Yadav, Ali A. Rastegari, **Karan Singh**, Anil Kumar Saxena (2019). Endophytic Fungi: Biodiversity, Ecological Significance, and Potential Industrial Applications. In: Recent Advancement in White Biotechnology through Fungi (Eds. A. N. Yadav et al.). Springer Nature Switzerland AG 2019.p. 1-62. [Springer International Publishing &ISBN 978-3-030-10479-5]

7. Kusam Lata Rana, Divjot Kour, Tanvir Kaur, Rubee Devi, Chandranandani Negi, Ajar Nath Yadav, Neelam Yadav, Karan Singh, Anil Kumar Saxena (2020). Endophytic fungi from medicinal plants: biodiversity and biotechnological applications. In: Microbial Endophytes (Eds. A. Kumar, E. K. Radhakrishnan). Elsevier, pp 273-305.

## CONFERENCE ABSTRACTS

1. **Karan Singh** (2016) Synthesis of Thiabendazole Derivatives and Their Antimicrobial Evaluation In proceedings of 2nd India International Science Festival (IISF-2016) - Young Scientists' Conclave (YSC), organized by CSIR-NPL New Delhi on Dec 8-11, 2016. Theme: Strategic Applications Abstract ID: STRAT_4

2. Nasib Singh**, Karan Singh** (2016) Biocement and construction biotechnology: Microbial mediated innovations in building and construction materials. In proceedings of 5th International Conference

on Engineering and Innovative Materials (ICEIM 2016) held on Sept. 10-12, 2016 at Kuala Lumpur, Malaysia.

3. **Karan Singh**, Rashi Arora, Renu Bala (2016) Beckmann rearrangement studies on the ketoximes derived from 3-substituted indanones. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

4. **Karan Singh**, Poonam Dogra, Himanshi, Sumit Sood (2016) Schmidt reaction studies on the 3-substituted indanones. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

5. Nasib Singh, Simranjeet Singh, **Karan Singh**, Joginder Singh (2016) Current scenario of Methyl N-(1H-benzimidazol-2-yl) carbamate (carbendazim) toxicity profile, environmental detection technologies and its microbial degradation. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

6. Krishan Kumar, Ajar Nath Yadav, Pritesh Kumar and **Karan Singh** (2016) Chemical changes in Foods during Processing and storage. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

7. Puneet Negi, **Karan Singh**, H. M. Agrawal, Hemaunt Kumar, R. C. Srivastava (2016) Sintering effect on structural and optical behaviour of multiferroic $GdMnO_3$. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.
8. Nasib Singh, Pooja Devi Gautam, Puja Kumari Chauhan, Karan Singh (2017) Promising antileishmanial chemotherapeutic agents from microorganisms (Abstr ID OP-1). In proceedings of 6th National Conference on Chemical & Environmental Sciences: Emerging Dimensions & Challenges Ahead (NCCES-2017) held on April 1, 2017 at Arya P.G. College, Panipat.

9. Sony, Karan Singh, Nasib Singh (2017). Natural food colouring agents: health advantages and future prospects (Abstr. No. PP44). In proceedings of National Conference on Advances in Food Science and Technology (AFST-2017) held at Eternal University, Baru Sahib, Himachal Pradesh from 24 to 25 March, 2017.

10. Nasib Singh, Karan Singh (2017). Microbial biocementation: applications in construction, geotechnical engineering and healthcare. In proceedings of 2nd International Conference on Innovative Research in Engineering Science and Technology (IREST-2017) held at Eternal University, Baru Sahib, Himachal Pradesh from 7-8 April, 2017.

## INVITED TALK

**Karan Singh** (2016) Applications of indan-1,3-dione in heterocyclic synthesis. In proceedings of 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

## POPULAR ARTICLE

1. **Karan Singh.** "Winners of the Nobel Prize for Preparative Organic Chemistry 1911-2014". EU Voice Vol. 1, Issue 1, 2015.

2. **Karan Singh.** "Giloy – A Herbal Remedies". EU Voice Vol. 1, Issue 1, 2015.

3. **Karan Singh.** "The Key Chemical Ingredients in Household Products". EU Voice Vol. 2, Issue 1, 2016.

## CONFERENCES/WORKSHOP ATTENDED

1. Participated and Oral presentation in workshop "Intellectual Property Rights in Research, Development and Academics" held on 25th Nov 2016 at Himalayan Forest Research Institute (HFRI), Panthaghati, Shimla.

2. Participated and Poster presented in 2nd India International Science Festival (IISF-2016) - Young Scientists' Conclave (YSC), organized by CSIR-NPL New Delhi on Dec 8-11, 2016. Theme: Strategic Applications Abstract ID: STRAT_4

3. Participated and delivered Invited Talk in 5th National Conference on Chemical Sciences: Emerging Scenario and Global Challenges (NCCS-2016) held on 26 March 2016 at Arya PG College, Panipat, Haryana.

4. Session Chair: 2nd International Conference on Innovative Research in Engineering, Science and Technology (IREST-2017) held at Eternal University, Baru Sahib, Himachal Pradesh from April 7-8, 2017.

5. National Conference on Advances in Food Science and Technology (AFST-2017) held at Eternal University, Baru Sahib, Himachal Pradesh from 24 to 25 March, 2017.

6. Workshop on Intellectual Property Rights: Issues & Challanges (IPRIC-2017) at Eternal University, Baru Sahib (H.P.) on March 14, 2017.

7. International Conference on Sarasvati River held at Kurukshetra University, Kurukshetra from 29-30 January, 2017.

8. 6th National Conference on Chemical & Environmental Sciences: Emerging Dimensions & Challenges Ahead (NCCES-2017) held at Arya P.G. College, Panipat (Haryana) on April 1, 2017.

9. 9th National Seminar on New Paradigm in Chemical Sciences: Synthetic and Analytical Perspectives - 2017 held at Punjabi University, Patiala, Punjab from Feb 9-10, 2017.

## PERSONAL INFORMATION

| | |
|---|---|
| **Birth Date:** | 08-07-1975 |
| **Place:** | Kaul, Kaithal, Haryana |
| **Nationality:** | Indian |
| **Wife:** | Late Mrs. Sony (M.Sc. Food and Nutrition, M.A. Sociology) |
| **Children:** | Nehal and Vertika |
| **Languages known:** | English, Hindi |

## REFERENCES

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