Dr. VIRENDER SINGH

Assistant Professor
Department of Chemistry
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Academic achievements:

- Ist division throughout the academic carrier.
- Gold Medalist in M. Sc. Chemistry (Kurukshetra Uni.) 2005
- CSIR-NET (JRF) Twice in Chemical Sciences 2005
- GATE (Chemical Sciences)-97.32 percentile 2005 (All India Rank-92)
- Lupin award in M. Sc. chemistry 2004
- Dr. M. M. Dhar Memorial Prize from CDRI, Lucknow 2010 (CSIR- CDRI, Lucknow)
- Selected for D S Kothari and CSIR Nehru postdoc fellowship 2011 (UGC and CSIR New Delhi)
- Prof. S. M. Mukherji Award for excellence in chemistry 2012 (Kurukashetra University)
- NandLal Telesara Memorial Award from ICC 2012 (Saurashtra University, Rajkot)
- Young Scientist Award from Him Science Congress 2013 (Soolini University, Solan, HP)
- Best Poster award at Nat. & Int. Nat. Conferences (8 times) 2013 & 2015

Academic Qualification (Undergraduate Onwards):-

S. No.	Degree	Year	Subjects	University/Institute	Percentage
1.	B. Sc.	2003	Chemistry, Zoology, Botany, English	Kurukshetra University, Kuru.	74.28%
2.	M. Sc.	2005	Organic Chemistry	Kurukshetra University, Kuru.	70.60% (Gold Medalist)
3.	Ph. D.	2006-2011	Medicinal Chemistry and Synthetic Organic Chemistry	CSIR-Central Drug Research Institute (CDRI), Lucknow.	Awarded (Best thesis award)

Teaching experience (in chronological order):- More than 5 year and seven months

S. No.	Positions held	Name of Institute/University	From	To	Pay Scale
1.	Assistant Professor	Central University of Punjab, Bathinda, Punjab	March 16, 2011	Mar. 15, 2012 (one year)	15600-39100 + 6000AGP
2.	Assistant Professor	DR B R Ambedkar National Institute of Technology (NIT) Jalandhar, Punjab	March 20, 2012	Till date (> Five year)	15600-39100 + 6000AGP

Sponsored Research Projects:- Ongoing and completed

S. No.	Title of Project	Funding Agency	Financial Outlay	Year of start & total period	Name of P.I.	Present Status
1.	Application of Building Blocks from MBH Chemistry for the Synthesis of Privileged Scaffolds	DST, New Delhi	23.70 Lacs	2013-Dec. 2016 36 Month	Dr. Virender Singh	Completed 31/12/2016
2.	Natural Product Inspired Design, Synthesis, and Anticancer Evaluation of β-Carboline Derivatives	CSIR, New Delhi	19 Lacs	2015-2017 36 Month	Dr. Virender Singh	Ongoing

One research project entitled as "*Design, Synthesis and Screening of New Chemotypes and Molecular Hybrids as Potential Type-II Anti-diabetic Agents*" of cost Rs 35 Lakhs has been submitted to DST-SERB, New Delhi.

a) List of Publications:-

1. D. Singh, V. Kumar, N. Devi, C. C. Malakar, R. Nainawat and **Virender Singh**.* Metal-free Decarboxylative Amination: An Alternative Approach towards Regioselective Synthesis of β-Carboline N-fused Imidazoles. *Adv. Synth. Catal*. **2017**, *359*, 1-15.
2. D. Dheer, **Virender Singh**, R. Shankar. Medicinal attributes of 1,2,3-triazoles: Current developments. *Bioorganic Chemistry*, **2017**, *71*, 30-54.
3. N. Devi, D. Singh, G. Kaur, S. Mor, C. C. Malakar and **Virender Singh***. $In(OTf)_3$ Assisted Synthesis of β-Carboline C-3 Tethered Imidazo[1,2-a]azine Derivatives. *New Journal of Chemistry*, **2017**, *41*, 1082-1093.
4. S. Mor, R. Mohil, S. Nagoria, A. Kumar, K. Lal, D. Kumar, and **Virender Singh**, Regioselective synthesis, antimicrobial evaluation and QSAR studies of some 3-aryl-1-heteroarylindeno[1,2-*c*]pyrazol-4(1*H*)-ones. *J. Het. Chem*. **2017**, *54*, 1327–1341.
5. D. Singh, N. Devi, V. Kumar, C. C. Malakar, S. Mehra, R. K Rawal, B. S. Kaith, and **Virender Singh**.* A Metal-free 1,3-Dipolar Cycloaddition Approach towards Regioselective Synthesis of β-Carboline and Isoxazole Based Molecular Hybrids. *RSC Adv*. **2016**, *6*, 88066-88076.
6. D. Singh, N. Devi, V. Kumar, C. C. Malakar, S. Mehra, S. Rattan, R. K. Rawal and **Virender Singh**.* Natural Product Inspired Designing and Synthesis of β-Carboline and γ-Lactones Based Molecular Hybrids. *Org. Biomol. Chem.* **2016**, *14*, 8154-8166.
7. N. Devi, D. Singh, Honey, S. Mor, S. Chaudhary, R. K Rawal, V. Kumar, A. K Chowdhury and **Virender Singh***. $In(OTf)_3$ Catalysed an Expeditious Synthesis of β-Carboline- imidazo[1,2-*a*]pyridine and imidazo[1,2-*a*]pyrazine Conjugates. *RSC Advances*, **2016,** *6*, 43881-43891.

8. N. Devi, D. Singh, R. K. Sunkaria, C. C. Malakar, S. Mehra, R. K. Rawal and **Virender Singh**.* $In(OTf)_3$-HBF_4 Assisted Multicomponent Approach for One-Pot Synthesis of Pyrazolopyridinone Fused Imidazopyridines. *ChemistrySelect*, **2016**, *1*, 4696–4703.
9. N. Vodnala, D. Kaldhi, S. Polina, V.P. R. K. Putta, R. Gupta, S.C. P. Promily, R.K. Linthoinganbi, **Virender Singh**, C. C. Malakar. Pd-Catalyzed Domino Reactions of Nitroaromatics: A Surrogate Access towards the Saturated N-heterocycles. *Tetrahedron Lett*. **2016**, *57*, 5695–5699.
10. N. Vodnala, D. Kaldhi, R. Gupta, R. K. Linthoinganbi, V. P. Rama Kishore Putta, S. Polina, **Virender Singh,** C. C. Malakar, Novel Domino Routes for the Synthesis of N-Heterocycles via Reductive Cyclization of β-(*N*-2-nitroaryl)-α,β-unsaturated ketones. *ChemistrySelect*, **2016**, *18*, 5784–5788.
11. N. Devi, D. Singh, R. K. Rawal, J. Bariwal, **Virender Singh***. Medicinal Attributes of Imidazo[1,2-*a*]pyridine Derivatives: An Update. *Curr. Top. Med. Chem*., **2016**, *16*, 2963-2994.
12. R. K Rawal, J. Bariwal, and **Virender Singh**. Chemistry and Bioactivities of Aristeromycins: An Overview. *Curr. Top. Med. Chem*., **2016**, *16*, 3258-3273.
13. B. Kumar, **Virender Singh**, R. Shankar, K. Kumar and R. K. Rawal. Synthetic and Medicinal Prospective of Structurally Modified Curcumins. *Curr. Top. Med. Chem*., **2016**, *17*, 148-161.
14. S. Swami, N. Devi, A. Agarwala, **Virender Singh**, R. Shrivastava. ZnO Nanoparticles as reusable heterogeneous catalyst for efficient one pot three component syntheses of imidazo-fused polyheterocycles. *Tetrahedron Lett.* **2016**, *57*, 1346-1350.
15. N. Devi, R. K. Rawal and **Virender Singh***. Diversity Oriented Synthesis of Fused-imidazole Derivatives via Groebke-Blackburn-Bienayme Reaction: A Review. *Tetrahedron* **2015**, *71*, 183-232.
16. B. K. Narang, S. Roy, R. Sharma, **Virender Singh** and R. K. Rawal. Riociguat as a Treatment Regime for Pulmonary Arterial Hypertension: A Review. *Clinical and Experimental Hypertension*, **2015**, *37*, 323-331.
17. B. K. Narang, **Virender Singh**, M. K. Gupta and R. K. Rawal. 3D-QSAR Analysis on 6-(1-Benzyl-1*H*-pyrrol-2-yl)-2, 4-dioxo-5-hexenoic acid Derivatives as Recombinant HIV-1 Integrase Inhibitors. *Der Pharma Chemica*, **2014**, *6*, 80-89.
18. R. Singla, **Virender Singh**, A. Negi. Synthetic Indole Alkaloids in Cancer: An Overview. *Adv. J. Pharm. Life Sci. Res.* **2013**, *1*, 7-15.
19. **Virender Singh** and S. Batra. 1-Formyl-9*H*-β-carboline: A useful scaffold for synthesizing substituted- and fused β-carbolines. *Curr. Org. Syn.* **2012**, 9, 513-528.
20. S. Hutait, **Virender Singh** and S. Batra. Facile synthesis of dihydroquinoline-fused canthines by intramolecular Aza-Diels–Alder reaction. *Eur. J. Org. Chem*. **2010**, 6269-6276.
21. S. Biswas, **Virender Singh** and S. Batra, Morita-Baylis-Hillman reaction of indole-2-carboxaldehyde: New opportunities for indole-annulated systems. *Tetrahedron* **2010**, *66*, 7781-7786.
22. **Virender Singh**, S. Hutait and S. Batra. Advancing the Baylis-Hillman chemistry of 1-formyl-β-carbolines for the synthesis of indolizinoindole derivatives. *Eur. J. Org. Chem*. **2010**, 3684-3891.
23. **Virender Singh**, S. Hutait, S. Biswas and S. Batra. Versatility of substituted 1-formyl-9*H*-β-carbolines for the syntheses of new fused β-carbolines via intramolecular 1,3-Dipolar Cycloaddition. *Eur. J. Org. Chem*. **2010**, 531-539.
24. **Virender Singh**, S. Hutait and S. Batra. Baylis-Hillman reaction of 1-formyl-β-carboline: one-step synthesis of the canthin-6-one framework via an unprecedented cascade cyclization. *Eur. J. Org. Chem*. **2009**, 6211-6216.
25. **Virender Singh**, S. Hutait and S. Batra. Reductive-cyclization-mediated syntheses of fused polycyclic quinolines from the Baylis-Hillman adducts of acrylonitrile: Scope and limitations. *Eur. J. Org. Chem*. **2009**, 3454-3466.
26. **Virender Singh**, V. Singh and S. Batra. Straight forward strategy for stereoselective synthesis of spiro-fused (C-5)isoxazolino or (C-3)pyrazolino-(C-3)-quinolin-2-ones from Baylis-Hillman adducts via 1,3-dipolar cycloaddition and reductive cyclization. *Eur. J. Org. Chem*. **2008**, 5446-5460.
27. **Virender Singh**, G. P. Yadav, P. R. Maulik and S. Batra. Synthesis of substituted 3-methylene-2-pyridones from Baylis-Hillman derivatives and its application for the generation of 2-pyridone substituted spiroisoxazolines. *Tetrahedron* **2008**, *64*, 2979-2991.
28. S. Nag, **Virender Singh** and S. Batra. Studies on the Baylis-Hillman reaction of pyrazolecarbaldehydes under the influence of DABCO: Positional effect on the reactivity of the formyl group. *ARKIVOC* **2007**, *14*, 185-203.
29. S. Madapa, **Virender Singh** and S. Batra. An alternate approach to quinoline architectire via Baylis-Hillman chemistry: $SnCl_2$-mediated tandem reaction toward synthesis of 4-(substituted vinyl)-quinolines. *Tetrahedron* **2006**, *62*, 8740-8748.

b) Book Chapter:-

N. Devi, R. K. Rawal, **Virender Singh**. Diversity Oriented Synthesis of Substituted and Fused β-Carbolines from 1-Formyl-9*H*-β-Carboline Scaffolds. *Research Methodology in Chemical Sciences. Apple Academic Press*. **2016**, Chapter-5, 97–136. Print ISBN: 978-1-77188-127-2, eBook ISBN: 978-1-4987-2860-7, DOI: 10.1201/b19855-6.

Symposium and conferences: Participated and presented research work in **16** national and **07** international conferences. Selected twice for J-NOST conference to present research work. Also attended 15 Short Term Courses.

Expert Talk and Invited Talk delivered 04+08 =12

Extra Activities/ Administrative Responsibilities:-

❖ Coordinator UG scholarship	2016
❖ Warden Boy's Hostel, Mega Hostel, F-Block	2014-17 (Till March 2017)
❖ Warden Boy's Hostel, H-6 NITJ (One Year)	2013-14
❖ Faculty Advisor, Music And Dramatic Society (MADS)	2014, 2015 and 2016
❖ Faculty Advisor, Movie Club, TechNiti	2015
❖ Coordinator, Fine Arts	2016 and 2017
❖ Faculty coordinator, NSS NITJ	2012-2014
❖ Member Library Committee NITJ	2012-13 and 2015-17

Summary of CV (Dr Virender Singh)

- Dr Virender Singh has done his graduation and Post Graduation from Kurukashetra University, Kurukshetra as gold medallist in M. Sc. Organic chemistry. He completed his Ph D from CSIR- CDRI Lucknow in 2011 with Dr Sanjay Batra in the area of Synthetic Organic and Medicinal Chemistry.
- After PhD in 2011, he joined Central University of Punjab as Assistant Professor in Centre for Chemical and Pharmaceutical Sciences. In 2012 he moved to NIT Jalandhar as Assistant Professor in Chemistry. At present, he has more than 6 year of teaching and post PhD research experience.
- His area of research interests includes the development of new anticancer agents, multicomponent reactions and development of chemistry associated with the Morita-Baylis-Hillman reaction and green chemistry.
- He was selected for prestigious CSIR-Nehru and DS Kothari Postdoc fellowships in 2011. He has been the recipient of several awards like Sh. NandLal Telesara Memorial Award, Prof. S.M. Mukherji Award for excellence in Chemistry, Prof. C.P. Garg Medal, Lupin Award, Young Scientist award from Him Science Congress Association and Dr. M.M. Dhar Memorial Award from CDRI, Lucknow for his academic and research contributions.
- He has published 29 research publications in various international Journals.
- He is presently guiding five PhD students and one student has completed her PhD.
- Two major research projects funded by DST and CSIR, New Delhi related to the development of anticancer agents are ongoing in his lab at NIT Jalandhar.

The topic of his talk is