




## Faculty Details proforma for DU Web-site

Title	Prof.	First Name	MARILYN	Last Name	MILTON	Photograph
Designation	Professor					
Address	North Campus, Department of Chemistry, Faculty of Science, University of Delhi, Delhi 110 007					
Phone No	Office	011-27667794/27666646 Extn. 140				
	Residence	-				
	Mobile	-				
Email	mdmilton@chemistry.du.ac.in					
Web-Page	-					
<b>Educational Qualifications</b>						
Degree	Institution				Year	
Ph.D.	Indian Institute of Technology, Delhi				2002	
M.Phil. / M.Tech.	-				-	
PG	Indian Institute of Technology, Delhi				1997	
UG	Miranda House, University of Delhi				1995	
Any other qualification						
<b>Career Profile</b>						
<p><b>2013-till date:</b> Professor <b>2008-2013:</b> Associate Professor, Department of Chemistry, University of Delhi. <b>2007-08:</b> Reader, Department of Chemistry, University of Delhi. <b>2005-07:</b> Assistant Professor, Department of Chemistry, Indian Institute of Technology, Kharagpur. <b>2005:</b> Lecturer (ad-hoc), Miranda House, University of Delhi. <b>2004-05:</b> Visiting Researcher, Department of Chemistry, Shiga University of Medical Sciences, Japan. <b>2004:</b> Guest Research Associate, Department of Energy and Hydrocarbon Chemistry, Kyoto University, Japan. <b>2002-04:</b> Monbukhagakusho Research Fellow, Department of Energy and Hydrocarbon Chemistry, Kyoto University, Japan. <b>2002:</b> Project Scientist, Department of Chemistry, Indian Institute of Technology, Delhi.</p>						
<b>Administrative Assignments</b>						
-						
<b>Areas of Interest / Specialization</b>						
Synthesis of new heterocyclic compounds and their applications, Organocatalysis, Transition-metal catalyzed cross-coupling reactions, development of multi-catalyst systems for organic transformations, development of new methodologies for functional group transformations, design and synthesis of fluorescent sensors.						

Subjects Taught								
<p><b>M.Sc.:</b> Organic Stereochemistry; Spectroscopy; Photochemistry; Supramolecular Chemistry and Carbocyclic Rings; Chemistry of Life Processes</p> <p><b>M.Tech.:</b> Supramolecular Chemistry, Philosophy of Organic Synthesis</p> <p><b>Ph.D. :</b> Metal-catalyzed cross-coupling reactions</p>								
Research Guidance								
<p><i>List against each head (If applicable)</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 20px;">1. <i>Supervision of awarded Doctoral Thesis</i></td> <td style="text-align: right; vertical-align: bottom;">-4</td> </tr> <tr> <td style="padding-left: 20px;">2. <i>Supervision of Doctoral Thesis, under progress</i></td> <td style="text-align: right; vertical-align: bottom;">- 4</td> </tr> <tr> <td style="padding-left: 20px;">3. <i>Supervision of awarded M.Phil dissertations</i></td> <td style="text-align: right; vertical-align: bottom;">-</td> </tr> <tr> <td style="padding-left: 20px;">4. <i>Supervision of M.Phil dissertations, under progress</i></td> <td style="text-align: right; vertical-align: bottom;">-</td> </tr> </table>	1. <i>Supervision of awarded Doctoral Thesis</i>	-4	2. <i>Supervision of Doctoral Thesis, under progress</i>	- 4	3. <i>Supervision of awarded M.Phil dissertations</i>	-	4. <i>Supervision of M.Phil dissertations, under progress</i>	-
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4. <i>Supervision of M.Phil dissertations, under progress</i>	-							
Publications Profile								
<p><i>List against each head (If applicable) (as Illustrated with examples)</i></p> <ol style="list-style-type: none"> <li>1. <i>Books/Monographs (Authored/Edited)</i></li> <li>2. <i>Research papers published in Refereed/Peer Reviewed Journals</i></li> </ol> <ol style="list-style-type: none"> <li>1. Milton, M. D.; Garg, P. <b>2016</b>. "Flexible, Dicationic Imidazolium Salts for in situ Application in Palladium-catalyzed Mizoroki-Heck Coupling of Acrylates under Aerial Conditions" <b>Applied Organomet. Chem.</b>, DOI: 10.1002/aoc.3503.</li> <li>2. Varshney, R.; Sethi, S.; Rangaswamy, S.; Tiwari, A. K.; Milton; M. D.; Kumaran, S.; Mishra, A. K. <b>2016</b>. "Design, synthesis and relaxation studies of triazole linked gadolinium(III)- DO3A-BTbistriazaspirodecanone as a potential MRI contrast agent" <b>New J. Chem.</b>, DOI: 10.1039/c5nj03220b.</li> <li>3. Bishnoi, S.; Milton, M. D. <b>2015</b>. Tunable phenothiazine hydrazones as colour displaying, ratiometric and reversible pH sensors. <b>Tetrahedron Lett.</b> 56: 6633–6638.</li> <li>4. Chadha, N.; Tiwari, A. K.; Kumar, V.; Lal, S.; Milton, M. D.; Mishra, A. K. <b>2015</b>. Oxime-dipeptides as anticholinesterase, reactivator of phosphonylated-serine of AChE catalytic triad: probing the mechanistic insight by MM-GBSA, dynamics simulations and DFT analysis. <b>Journal of Biomolecular Structure and Dynamics</b> 33: 978-990.</li> <li>5. Chadha, N.; Tiwari, A. K.; Kumar, V.; Milton, M. D.; Mishra, A. K. <b>2015</b>. In silico thermodynamics stability change analysis involved in BH4 responsive mutations in phenylalanine hydroxylase: QM/MM and MD simulations analysis. <b>Journal of Biomolecular Structure and Dynamics</b> 33:573-583.</li> <li>6. Garg, P.; Chaudhary, S.; Milton; M. D. <b>2014</b>. Synthesis of 2-Aryl/Heteroaryloxazolines from Nitriles under Metal and Catalyst-Free Conditions and Evaluation of Their Antioxidant Activities. <b>J. Org. Chem.</b> 79: 8668–8677.</li> <li>7. Lal, A. K.; Milton, M. D. <b>2014</b>. Designed benzimidazolium salts: Modulation of fluorescence response towards metal cations in pure aqueous media. <b>Sensors and Actuators B.</b> 202: 257–262.</li> <li>8. Lal, A. K.; Milton, M. D. <b>2014</b>. Synthesis of new benzimidazolium salts with tunable emission intensities and their application as fluorescent probes for Fe<sup>3+</sup> in pure aqueous media. <b>Tetrahedron Lett.</b> 55: 1810-1814.</li> </ol>								

9. Sethi, S.; Varshney, R.; Rangaswamy, S.; Chadha, N.; Hazari, P. P.; Kaul, A.; K.; Chuttani, Milton; M. D.; Mishra, A. K. **2014**, Design, Synthesis and Preliminary Evaluation of a novel SPECT DTPA-bis-triazaspirodecanone Conjugate for D2 Receptor Imaging. *RSC Adv.* 4: 50153-50162.
10. Garg, P.; Milton, M. D. **2013**. Sodium carbonate mediated regioselective synthesis of novel *N*-(hydroxyalkyl)cinnamamides. *Tetrahedron Lett.* 54: 7074-7077.
11. Chadha, N.; Tiwari, A. K.; Milton, M. D.; Mishra, A. K.; **2013**. Perception into hypoxia selectivity and electronic features of symmetrically substituted bithiosemicarbazone ligands and their copper complexes: DFT and QM/MM docking. *Med. Chem. Commun*, 4: 542-548.
12. Varshney; R.; Sethi, S. K.; Hazari, P. P.; Chuttani, K.; Soni, S.; Milton, M.D.; Mishra, A.K. **2012**. Synthesis of [DTPA-bis(D-ser)] chelate (DBDSC): An approach for the design of SPECT radiopharmaceuticals based on Technetium. *Curr. Radiopharm.* 5: 348-355.
13. Inada, Y.; Yoshikawa, M.; Milton, M. D.; Nishibayashi, Y.; Uemura, S. **2006**. Ruthenium-catalyzed propargylation of aromatic compounds with propargylic alcohols. *Eur. J. Org. Chem.* 4: 881-890.
14. Kumar, N.; Milton, M. D.; Singh, J. D.; Upreti, S.; Butcher, R. J. **2006**. Design, synthesis, and structural aspects of chalcogen-substituted pyridinedicarboxamide donors and their reactions. *Tetrahedron Lett.* 47: 885-889.
15. Onodera, G.; Matsumoto, H.; Milton, M. D.; Nishibayashi, Y.; Uemura, S. **2005**. Ruthenium-Catalyzed Formation of Aryl(diphenyl)phosphine Oxides by Reactions of Propargylic Alcohols with Diphenylphosphine Oxide. *Org. Lett.* 7: 4029-4032.
16. Nishibayashi Y.; Milton, M. D.; Inada, Y.; Yoshikawa, M.; Wakiji, I.; Hidai, M.; Uemura, S. **2005**. Ruthenium-catalyzed propargylic substitution reactions of propargylic alcohols with oxygen-, nitrogen-, and phosphorus-centered nucleophiles. *Chem. Eur. J.* 11: 1433-1451.
17. Milton, M. D.; Khan, S.; Singh, J. D.; Singh, S.; Maheshwari, M.; Mishra, V.; Khandelwal, B. L. **2005**. A facile access to chalcogen and dichalcogen bearing dialkylamines and diols. *Tetrahedron Lett.* 46: 755-758.
18. Milton, M. D.; Inada, Y.; Nishibayashi, Y.; Uemura, S. **2004**. Ruthenium and gold catalysed sequential reactions: a straightforward synthesis of substituted oxazoles from propargylic alcohols and amides. *Chem. Commun.* 2712-2713.
19. Milton, M. D.; Kumar, N.; Sokhi, S. S.; Singh, S.; Maheshwari, M.; Singh, J. D.; Asnani, M. ; Butcher, R. J. **2004**. Design and synthesis of organochalcogen (Se or Te) based multifunctional derivatives: structural determination and dynamic behavior of 2-chloro-4,6-bis(phenylselenoethyl- amino)-1,3,5-triazines. *Tetrahedron Lett.* 45: 8941-8944.
20. Milton, M. D.; Onodera, G.; Nishibayashi, Y.; Uemura, S. **2004**. Double phosphinylation of propargylic alcohols: a novel synthetic route to 1,2-bis(diphenylphosphino)ethane derivatives. *Org. Lett.* 6: 3993 - 3995.
21. Milton, M. D.; Singh, J. D.; Butcher, R. J. **2004**. Synthesis of  $\alpha$ -ketoenamine donors having O, N, Se/Te donor functionalities and their reaction chemistry with Pd (II) and Pt (II) metal ions. *Tetrahedron Lett.* 45: 6745-6747.

22. Kumar, N.; Milton, M. D.; Singh, J. D. 2004. An efficient synthesis and structural aspects of hexakis(arylseleno)benzenes and hexakis(arylselenomethyl)benzenes. *Tetrahedron Lett.* 45: 6611-6613.
23. Milton, M. D.; Kumar, N.; Sokhi, S. S.; Singh, S.; Singh, J. D. 2004. An efficient and facile one pot synthesis of structurally unique 2, 4, 6- tris(arylchalcogeno)-1,3,5-triazine and 1,3,5-tris(arylchalcogeno)-2,4,6-trimethylbenzene. *Tetrahedron Lett.* 45: 6453-6455.
24. Nishibayashi, Y.; Yoshikawa, M.; Inada, Y.; Milton, M. D.; Hidai, M.; Uemura, S. 2003. Novel ruthenium- and platinum-catalyzed sequential reactions: Synthesis of tri- and tetrasubstituted furans and pyrroles from propargylic alcohols and ketones. *Angew. Chem.* 115: 2785-2788; *Angew. Chem. Int. Ed.* 42: 2681-2684.
25. Milton, M. D.; Singh, J.; Singh, J. D.; Khandelwal, B. L.; Butcher, R. J. 2001. Design, synthesis and structural aspects of  $\text{NH}_2(\text{CH}_2)_n\text{E}(\text{CH}_2)_n\text{NH}_2$  ( $n = 2$  or  $3$ ;  $\text{E} = \text{Se}$  or  $\text{Te}$ )  $\text{N}_2\text{Se}$  or  $\text{N}_2\text{Te}$  donors and its complexes with Group 12 metals. *Phosphorus, Sulfur and Silicon and the Related Elements.* 171-172: 493-500.
26. Milton, M. D.; Singh, J. D.; Khandelwal, B. L.; Kumar, P.; Singh, T. P.; Butcher, R. J. 2001. Design, synthesis and structural aspects of terdentate (N,O,Se/Te) donors and their competitive coordination behavior towards Pt(II). *Phosphorus, Sulfur and Silicon and the Related Elements.* 171-172: 485-492.
27. Singh, J. D.; Milton, M. D.; Bhalla, G.; Khandelwal, B. L.; Kumar, P.; Singh, T. P.; Butcher, R. J. 2001. Design, synthesis and structural aspects of acyclic  $\text{N}_3\text{E}_2$  ( $\text{E} = \text{Se}$  or  $\text{Te}$ ) type donors and its complexes with Group 12 metals. *Phosphorus, Sulfur and Silicon and the Related Elements.* 171-172: 477-484.
28. Milton, M. D.; Singh, J. D.; Butcher, R. J. 2001. Design and synthesis of heteroatom bearing organoselenium donor and its reactivity towards platinum(II) metal. *Phosphorus, Sulfur and Silicon and the Related Elements.* 168-169: 477-480.
29. Singh, J. D.; Milton, M. D.; Khandelwal, B. L.; Karthikeyan, S.; Singh, T. P. 1998. New acyclic chalcogen bearing ligands and their complexation reactions. *Phosphorus, Sulfur and Silicon and the Related Elements.* 136-138: 299-304.

*Patent Applications filed*

1. "Novel brominated phenothiazine scaffolds and methods thereof"; Milton, M.D.; Bishnoi, S. **Indian patent application no. 2110/DEL/2014.**

3. *Research papers published in Academic Journals other than Refereed/Peer Reviewed Journals*
4. *Research papers published in Refereed/Peer Reviewed Conferences*
5. *Research papers Published in Conferences/Seminar other than Refereed/Peer Reviewed Conferences*
6. *Other publications (Edited works, Book reviews, Festschrift volumes, etc.)*

## Conference Organization/ Presentations (in the last three years)

List against each head (If applicable)

1. *Organization of a Conference*
  2. *Participation as Paper/Poster Presenter*
1. M.D. Milton and S. Bishnoi, "Synthesis of Novel Dibromophenothiazine-5-oxide scaffolds: Potential Building Blocks for OLED Materials" **Paper** presented at the **International Conference on Material Science and Technology (ICMTECH 2016)**, held from 1-4 March, **2016** at the University of Delhi, India.
  2. S. Chaudhary, P. Garg, M.D. Milton, "A Convenient Synthesis of Biologically Important Thiazoline Scaffolds" **Poster** presented at **22<sup>nd</sup> ISCB International Conference (ISCB 2016) on Recent trends in affordable and sustainable drug discovery developments** held from 6 - 8 February, **2016** at Uka Tarsadia University, Surat, India.
  3. T. Sachdeva, S. Bishnoi, M. D. Milton "Design and synthesis of phenothiazine hydrazones and their application as pH sensors" **Poster** presented at **18<sup>th</sup> CRSI Nation Symposium in Chemistry** held from 5-7 February, **2016** at the Department of Chemistry, Punjab University, Chandigarh, India.
  4. P. Garg and M. D. Milton, "A simple and efficient sodium carbonate-mediated regioselective synthesis of *N*-(hydroxyalkyl)cinnamamides under mild conditions" **Poster** presented at **20<sup>th</sup> ISCB International Conference** on "Chemistry and Medicinal Plants in Translational Medicine for Healthcare" held on 1<sup>st</sup>- 4<sup>th</sup> March, **2014** at the Department of Chemistry, University of Delhi, Delhi, India.
  5. Amita, P. Garg and M. D. Milton, "C-C bond forming reactions, N-Heterocyclic Carbenes (NHCs) in dual role: metal catalysis and organocatalysis", **Poster** presented at **National Seminar on Chemistry In Interdisciplinary Applications**. 18<sup>th</sup> March **2013**. Department of Chemistry, Hans Raj College, Delhi University.
  6. P. Garg, S. Bishnoi and M. D. Milton, "Palladium/picoline functionalized imidazolium and benzimidazolium salts as new catalysts for Heck reaction", **Poster** presented at **Lecture, Workshop /Conference on Emerging Trends in Development of Drugs and Devices**. 21<sup>st</sup>-23<sup>rd</sup> January, **2013**. Department of Chemistry, University of Delhi.
  7. Amita, S. Chaudhary and M. D. Milton, "N-Heterocyclic carbene (NHCs) in dual role: metal catalysis and organocatalysis", **Poster** presented at **Lecture, Workshop /Conference on Emerging Trends in Development of Drugs and Devices**. 21<sup>st</sup>-23<sup>rd</sup> January, **2013**. Department of Chemistry, University of Delhi.

## Research Projects (Major Grants/Research Collaboration)

- Principal Investigator of Project Titled "*Synthesis of novel water-soluble fluorescent probes for metal ions and anions in aqueous medium*" Funded by University of Delhi, 2015-16.
- Principal Investigator of Project Titled "Synthesis of novel 2-aryloxazolines and study of their antioxidant activities" Funded by University of Delhi, 2014-15.
- Principal Investigator of Project Titled "Design and synthesis of novel, water-soluble functionalized benzimidazole and imidazole compounds and their applications" Funded by University of Delhi, 2013-14.

- Principal Investigator of Project Titled “Synthesis of novel *N*-heterocyclic carbene (NHCs) ligands and their application in C-C bond forming reactions” Funded by University of Delhi, 2012-13.
- Principal Investigator of Project Titled “Benzoin Condensation in Aqueous Medium By Novel *N*-Heterocyclic Carbene (NHCs) Ligands” Funded by University of Delhi, 2011-12.
- Principal Investigator of Project Titled “Transition-metal catalyzed C-N bond forming reactions of aryl halides” Funded by University of Delhi, 2010-11.
- Principal Investigator of SERC Fast Track Scheme for Young Scientists (DST) Titled “Transition-metal catalyzed activation of C(aryl)-Cl bond and its application in C-N, C-O and C-S bond forming reactions”, 2007-10.

#### Awards and Distinctions

Monbukagakusho (Japanese Government) Scholarship (2002-04)  
 Junior and Senior Research Fellowships (University Grants Commission) 1997-2001

#### Association With Professional Bodies

1. *Editing*
2. *Reviewing*      Reviewer- RSC Advances, Tetrahedron Letters, Synthesis, Current Organic Chemistry, Chemistry Central Journal
3. *Advisory*
4. *Committees and Boards*
5. *Memberships:*    Life membership of Chemical Research Society of India (CRSI)  
                                  Member, American Chemical Society (Annual)
6. *Office Bearer*

#### Other Activities

Member of various committees in the Department of Chemistry