




Faculty Details proforma for DU Web-site

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cc: director@ducc.du.ac.in)

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	-				
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Email		mdmilton@chemistry.du.ac.in				
Web-Page		-				
Educational Qualifications						
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						
Career Profile						
<p>2013-till date: Professor 2008-2013: Associate Professor, Department of Chemistry, University of Delhi. 2007-08: Reader, Department of Chemistry, University of Delhi. 2005-07: Assistant Professor, Department of Chemistry, Indian Institute of Technology, Kharagpur. 2005: Lecturer (ad-hoc), Miranda House, University of Delhi. 2004-05: Visiting Researcher, Department of Chemistry, Shiga University of Medical Sciences, Japan. 2004: Guest Research Associate, Department of Energy and Hydrocarbon Chemistry, Kyoto University, Japan. 2002-04: Monbukhagakusho Research Fellow, Department of Energy and Hydrocarbon Chemistry, Kyoto University, Japan. 2002: Project Scientist, Department of Chemistry, Indian Institute of Technology, Delhi.</p>						
Administrative Assignments						
-						
Areas of Interest / Specialization						
Design and synthesis of fluorescent sensors; development of new methodologies for functional group transformations; synthesis of novel heterocyclic compounds and their applications, organocatalysis, transition-metal catalyzed cross-coupling reactions, development of multi-catalyst systems for organic transformations.						

Subjects Taught									
<p>M.Sc.: Organic Stereochemistry; Spectroscopy; Photochemistry; Supramolecular Chemistry and Carbocyclic Rings; Chemistry of Life Processes</p> <p>M.Tech.: Supramolecular Chemistry, Philosophy of Organic Synthesis</p> <p>Ph.D. : Metal-catalyzed cross-coupling reactions</p>									
Research Guidance									
<p><i>List against each head (If applicable)</i></p> <table border="0"> <tr> <td>1. Supervision of awarded Doctoral Thesis</td> <td style="text-align: right;">-4</td> </tr> <tr> <td>2. Supervision of Doctoral Thesis, under progress</td> <td style="text-align: right;">- 6</td> </tr> <tr> <td>3. Supervision of awarded M.Phil dissertations</td> <td style="text-align: right;">-</td> </tr> <tr> <td>4. Supervision of M.Phil dissertations, under progress</td> <td style="text-align: right;">-</td> </tr> </table>		1. Supervision of awarded Doctoral Thesis	-4	2. Supervision of Doctoral Thesis, under progress	- 6	3. Supervision of awarded M.Phil dissertations	-	4. Supervision of M.Phil dissertations, under progress	-
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2. Supervision of Doctoral Thesis, under progress	- 6								
3. Supervision of awarded M.Phil dissertations	-								
4. Supervision of M.Phil dissertations, under progress	-								
Publications Profile									
<p><i>List against each head(If applicable) (as Illustrated with examples)</i></p> <ol style="list-style-type: none"> Books/Monographs (Authored/Edited) Research papers published in Refereed/Peer Reviewed Journals <ol style="list-style-type: none"> Chaudhary, S.; Milton; M. D.; Garg, P. 2017. "A Base- and Metal-free Protocol for the Synthesis of 2-Aryl/heteroaryl Thiazolines" <i>ChemistrySelect</i>, 2: 650-654. Bishnoi, S.; Milton, M. D. 2017. "Selective and sensitive novel benzimidazolium-based fluorescent probes for micromolar detection of Fe³⁺ ions in pure aqueous media" <i>J. Photochem. Photobiol. A</i>; 335: 52-58. (<i>Invited feature article</i>) Milton, M. D.; Garg, P. 2016. "Flexible, Dicationic Imidazolium Salts for in situ Application in Palladium-catalyzed Mizoroki-Heck Coupling of Acrylates under Aerial Conditions" <i>Applied Organomet. Chem.</i>, 30: 759-766. Varshney, R.; Sethi, S.; Rangaswamy, S.; Tiwari, A. K.; Milton; M. D.; Kumaran, S.; Mishra, A. K. 2016. "Design, synthesis and relaxation studies of triazole linked gadolinium(III)- DO3A-BTbistriazaspirodecanone as a potential MRI contrast agent" <i>New J. Chem.</i>, 40: 5846-5854. Bishnoi, S.; Milton, M. D. 2015. Tunable phenothiazine hydrazones as colour displaying, ratiometric and reversible pH sensors. <i>Tetrahedron Lett.</i> 56: 6633-6638. Chadha, N.; Tiwari, A. K.; Kumar, V.; Lal, S.; Milton, M. D.; Mishra, A. K. 2015. Oxime-dipeptides as anticholinesterase, reactivator of phosphonylated-serine of AChE catalytic triad: probing the mechanistic insight by MM-GBSA, dynamics simulations and DFT analysis. <i>Journal of Biomolecular Structure and Dynamics</i> 33: 978-990. Chadha, N.; Tiwari, A. K.; Kumar, V.; Milton, M. D.; Mishra, A. K. 2015. In silico thermodynamics stability change analysis involved in BH₄ responsive mutations in phenylalanine hydroxylase: QM/MM and MD simulations analysis. <i>Journal of Biomolecular Structure and Dynamics</i> 33:573-583. 									

8. Garg, P.; Chaudhary, S.; Milton, M. D. **2014**. Synthesis of 2-Aryl/Heteroaryloxazolines from Nitriles under Metal and Catalyst-Free Conditions and Evaluation of Their Antioxidant Activities. *J. Org. Chem.* 79: 8668-8677.
9. Lal, A. K.; Milton, M. D. **2014**. Designed benzimidazolium salts: Modulation of fluorescence response towards metal cations in pure aqueous media. *Sensors and Actuators B.* 202: 257-262.
10. Lal, A. K.; Milton, M. D. **2014**. Synthesis of new benzimidazolium salts with tunable emission intensities and their application as fluorescent probes for Fe³⁺ in pure aqueous media. *Tetrahedron Lett.* 55: 1810-1814.
11. 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.
12. Garg, P.; Milton, M. D. **2013**. Sodium carbonate mediated regioselective synthesis of novel N-(hydroxyalkyl)cinnamamides. *Tetrahedron Lett.* 54: 7074-7077.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. Milton, M. D.; Inada, Y.; Nishibayashi, Y.; Uemura, S. **2004**. Ruthenium and gold catalyzed sequential reactions: a straightforward synthesis of substituted oxazoles from propargylic alcohols and amides. *Chem. Commun.* 2712-2713.
21. 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.

22. 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.
23. Milton, M. D.; Singh, J. D.; Butcher, R. J. **2004**. Synthesis of α -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.
24. 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.
25. 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.
26. 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.
27. 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 Te) N_2Se or N_2Te donors and its complexes with Group 12 metals. **Phosphorus, Sulfur and Silicon and the Related Elements.** 171-172: 493-500.
28. 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.
29. 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 N_3E_2 ($\text{E} = \text{Se}$ or Te) type donors and its complexes with Group 12 metals. **Phosphorus, Sulfur and Silicon and the Related Elements.** 171-172: 477-484.
30. 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.
31. 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 **22nd 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 **18th 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 **20th ISCB International Conference** on "Chemistry and Medicinal Plants in Translational Medicine for Healthcare" held on 1st- 4th 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**. 18th 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**. 21st-23rd 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**. 21st-23rd 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

Signature of Faculty Member