




## University Faculty Details Page on DU Web-site

**(PLEASE FILL THIS IN AND SUBMIT A HARD COPY AND SOFT COPY ON CD  
ALONGWITH YOUR PERIODIC INCREMENT CERTIFICATE (PIC))**

Title	Professor	First Name	Ashok Kumar	Last Name	Prasad	<b>Photograph</b> 
Designation	Professor					
Department	Department of Chemistry					
Address (Campus)	North Campus, University of Delhi, Delhi - 110 007					
(Residence)	38/2, Probyn Road, Delhi University, Delhi - 110 007					
Phone No (Campus)	91-011-2766 2486					
(Residence)optional	91-011-2766 6481					
Mobile	8826931666					
Fax	011-2766 2486					
Email	<a href="mailto:ashokenzyme@yahoo.com">ashokenzyme@yahoo.com</a>					
Web-Page						
<b>Education</b>						
Subject	Institution		Year		Details	
Ph.D.	University of Delhi		1990		Subject: Chemistry	
M.Phil.	University of Delhi		1987		Subject: Chemistry	
M.Sc.	University of Bihar		1985		Subject: Chemistry	
B.Sc.	University of Bihar		1983		Subject: Chemistry (Hons)	
<b>Career Profile</b>						
Organization / Institution	Designation		Duration		Role	
University of Delhi	Professor		June 2009- todate		Teaching & Research	
University of Delhi	Associate Professor		2001-2009		Teaching & Research	
University of Southern Denmark, Denmark	Visiting Associate Professor		2008-2009		Honorary Position	
Japan Advance Institute of Science Technology	Visiting Professor		2015-16		Honorary Position	
University of Delhi	Scientist 'B'		1996-2001		Research	
University of Southern Denmark, Denmark	DANIDA (Denmark) Fellow		1992-1996		Research	
Department of Chemistry, University of Delhi	Senior Research Associate		1991-1992		Research	
Ranbaxy Research Laboratories, Delhi	Research Associate		1990-1991		Research	
<b>Research Interests / Specialization</b>						
<i>Nucleic Acid Chemistry: Novel Synthesis of modified nucleosides of biological importance; Biocatalysis and Biotransformations: Green Synthetic Methodology Development; Chemistry of Natural Products: Isolation of Bioactive compounds; and Synthesis of Bioactive Heterocyclic Compound. Synthesis of Amphiphilic Polymers for Drug Delivery Applications.</i>						
<b>Teaching Experience ( Subjects/Courses Taught)</b>						
16 Years teaching experience: Organic Chemistry, Bioorganic Chemistry, Photochemistry and Pericyclic Reaction, Organic Reaction Mechanism.						
<b>Honors &amp; Awards</b>						
<ul style="list-style-type: none"> <li>• Visiting Professor at Japan Advance Institute of Science Technology, Nomi Ishikawa, Japan (2015-18)</li> <li>• Excellence in Carbohydrate Research- 2015 by Association of Carbohydrate Chemists &amp; Technologists (India)</li> <li>• ISCB Award for Excellence in Chemical Sciences- 2014</li> <li>• Honorary Diploma for Scientific Achievements and International Scientific Collaboration by Russian International Charitable Foundation "Scientific Partnership", Moscow, Russia (March 2013)</li> <li>• Honorary Visiting Asso. Professor, Department of Physics and Chemistry, University of Southern Denmark, Denmark</li> <li>• INBRE Lecture (June 2008)</li> <li>• DANIDA (Denmark) Fellow: 1992-1996</li> <li>• The CRSI Young Scientist Award- 2007</li> <li>• Senior Research Fellow (1989): CSIR, New Delhi</li> </ul>						

- Junior Research Fellow (1986): CSIR, New Delhi
- Junior Research Fellow (1986): UGC-NET, New Delhi
- National Merit scholarship: Government of India, Sessions 1982-83 and 1983-84 during MSc

## Publications

### Books / Monographs

<u>S. No.</u>	<u>Year of Publication</u>	<u>Title</u>	<u>Book</u>	<u>Co-Author</u>
1.	2005	Biocatalytic Protecting Group Chemistry on Sugars, Nucleosides and their Analogs	Biocatalysis: Chemistry and Biology	Gaurav Shakya
2.	2017	Facile Access to Bromonucleosides Using Sodium Monobromoisocyanurate (SMBI)	Current protocols in nucleic acid chemistry, 68, 1391-1399.	Jyotirmoy Maity, Smriti Srivastava, YS Sanghvi, Roger Stromberg

### In Indexed/ Peer Reviewed Journals

<u>S. No.</u>	<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>
1.	2014	Effect of acyl chain length on selective biocatalytic deacylation on O-aryl glycosides and separation of anomers	<i>Bioorg. Chem.</i> 53, 83-91
2.	2014	Nucleic acid therapeutics: Basic concepts and recent developments	<i>RSC Adv.</i> 4 (32), 16618-16631
3.	2014	Synthesis and evaluation of 2,2-dimethylchroman derivatives as inhibitors of ICAM-1 expression on human endothelial cells	<i>J. Het. Chem.</i> Article in Press
4.	2014	Synthesis of triazole linked LNA-based nonionic nucleoside dimers using click reaction	<i>Curr. Org. Synth.</i> 11, 1-10.
5.	2014	Synthesis of potential bioactive novel 7-[2-hydroxy-3-(1,2,3-triazol-1-yl)propyloxy]-3-alkyl-4-methylcoumarins	<i>J. Het. Chem.</i> 2015, 52, 1-14.
6.	2014	Cu(I)-catalyzed efficient synthesis of 2'-triazolo-nucleoside conjugates	<i>J. Het. Chem.</i> 2015, 52, 701-710.
7.	2014	Chemoenzymatic convergent synthesis of 2'-o,4'-c-methyleneribonucleosides	<i>J. Org. Chem.</i> 79 (13), 6336-6341
8.	2015	Design and Synthesis of Triazole-Linked xylo-Nucleoside Dimers	<i>Nucleosides, Nucleotides and Nucleic Acids</i> 34, 388-399.
9.	2015	Synthesis of potential bioactive novel 7-[2-hydroxy-3-(1,2,3-triazol-1-yl)propyloxy]-3-alkyl-4-methylcoumarins.	<i>J. Heterocyclic Chem.</i> 52, 1-14.
10.	2015	Mild and Efficient Palladium / BrettPhos-catalyzed Methoxylation and deuteriomethoxylation of Activated Aryl Bromides.	<i>Tetrahedron Letts.</i> 56, 2234-2237.
11.	2015	Satrustructure-activity Relationship Studies of 4-Methylcoumarin Derivatives as Anticancer Agents	<i>Pharma. Biol.</i> 2015, DOI: 10.3109/13880209.2015.1016183.
12.	2015	Self-assembly, Photoresponsive Behaviour and	<i>RSC Adv.</i> 5, 48301-48310

- Transport Potential of Azobenzene Grafted Dendronized Polymeric Amphiphiles
13. 2015 Highly Selective Biocatalytic Transesterification Reactions on Aryl 3-hydroxy-2-(hydroxymethyl)-2-methylpropanoates *Catalysis Letters* **145**, 919.
  14. 2015 Facile Access to 5'-S-(4,4'-Dimethoxytrityl)-2',5'-dideoxyribonucleosides via Stable Disulfide Intermediates *Current Protocols in Nucleic Acid Chemistry* DOI: 10.1002/0471142700.nc0134s62.
  15. 2015 Anti-inflammatory and Antioxidant Properties of Piper Species: A Perspective from Screening to Molecular Mechanisms *Current Topics Med. Chem.* **2015**, 15, 886-893.
  16. 2015 Inhibition of Alzheimer's BACE-1 by 2,6-Dialkyl-4-chromon-3-yl-1,4-dihydropyridin-3,5-dicarboxylates. *Med. Chem. Res.* **2015**, 24, 3230-3241.
  17. 2015 Nucleic Acid Based Therapeutics: Harnessing the Specificity *Research Journal of Contemporary Concerns.* 9(B), 3-8.
  18. 2015 Facile Access to 5'-S-(4,4'-Dimethoxytrityl)-2',5'-Dideoxyribo-nucleosides via Stable Disulfide Intermediates *Current protocols in Nucleic Acid Chemistry*, **2015**, 62, 1-9.
  19. 2015 Synthesis of potential bioactive novel 7-[2-hydroxy-3-(1,2,3-triazol-1-yl)propyloxy]-3-alkyl-4-methylcoumarins *J. Het. Chem.* **2015**, 52, 1-14.
  20. 2015 Design and Synthesis of Triazole-Linked xylo-Nucleoside Dimers *Nucleosides, Nucleotides and Nucleic Acids* **2015**, 34, 388-399.
  21. 2015 Cu(I)-Catalyzed Efficient Synthesis of 2'-Triazol-nucleoside Conjugates *J. Het. Chem* **2015**, 52, 701-710.
  22. 2015 Biocatalytic route to C-3'-azido/-hydroxy-C-4'-spiro-oxetanoribo-nucleosides Biocatalytic route to C-3'-azido/-hydroxy-C-4'-spiro-oxetanoribo-nucleosides *Carbohydrate Research* **2015**, 417, 19-26.
  23. 2015 Gapmer Oligonucleotides: Sugar-modified Wings to Antisense Therapeutics *Trends Carbo. Res.* **2015**, 7, 28-43.
  24. 2015 A general, mild and efficient palladium-catalyzed 2,2,2-trifluoroethoxylation of activated aryl bromides and bromo-chalcones: bromo-chalcones a new coupling partner in cross-coupling reaction *Tetrahedron* **2015**, 71, 8307-8314.
  25. 2015 Synthesis of  $\beta$ -C-Glycopyranosyl Aldehydes and 2,6-Anhydro-heptitols *J. Org. Chem.* **2015**, 80, 11169-11174.
  26. 2016 Structure-activity relationship studies of 4-methylcoumarin derivatives as anticancer agents *Pharmaceutical Biology*, **2016**, 54, 105-110.
  27. 2016 Triphenyl Phosphite-mediated "Green" Synthesis of Novel Carboxycoumarin Amides. *Current Green Chemistry*, 3(4), 366-373.
  28. 2016 Biocatalytic synthesis of novel partial esters of a *Molecules*, 21(11), 1499/1-1499/11.

		bioactive dihydroxy 4-methylcoumarin by <i>Rhizopus oryzae</i> lipase (ROL).	
29.	2016	Synthesis of macromolecular systems via lipase catalyzed biocatalytic reactions: applications and future perspectives.	<i>Chem. Soc. Rev.</i> , 45, 6855-6887.
30.	2016	Chemo-enzymatic synthesis of 3'-O,4'-C-methylene-linked $\alpha$ -L-arabinonucleosides.	<i>RSC Advances</i> , 6, 82432-82438.
31.	2016	Coumarin Derivatives as Adjuvants: From In Silico Physicochemical Characterization to In vitro Evaluation against Gram Positive Bacteria.	<i>Comb. Chem. High Throughput Screen</i> , 19, 489-496.
32.	2016	Hyperbranched glycerol-based core-amphiphilic branched shell nanotransporters for dermal drug delivery.	<i>Polymer</i> , 96, 156-166.
33.	2016	Synthesis and anti-inflammatory activity evaluation of novel triazolyl-isatin hybrids.	<i>J. Enzyme Inhib. Med. Chem</i> , 31, 1520-1526.
34.	2016	Mitigation of radiation-induced hematopoietic injury by the polyphenolic acetate 7, 8-diacetoxy-4-methylthiocoumarin in mice.	<i>Science Reports</i> , 6, 37305.
35.	2016	Synthesis of $\beta$ -C-Glycopyranosyl Aldehydes and 2,6-Anhydro-heptitols.	<i>J. Org. Chem.</i> , 80, 11169-11174.
36.	2016	Synthesis of 3'-azido/-amino-xylobicyclonucleosides	<i>RSC advances</i> <b>2016</b> , 6, 17713-17719.
37.	2016	Sugar-based novel chiral macrocycles for inclusion applications and chiral recognition	<i>Carbohydrate Res.</i> <b>2016</b> , 421, 25-32.
38.	2017	Synthesis and biological properties of triazole-linked locked nucleic acid.	<i>Chemical Communications</i> , DOI: 10.1039/c7cc04092.
39.	2017	Lipase-mediated Synthesis of Sugar-PEG-based Amphiphiles for Encapsulation and Stabilization of Indocyanine Green.	<i>RSC Advances</i> , <b>2017</b> , 7, 37534-37541.
40.	2017	C-4'-spiro-oxetano- $\alpha$ -L-ribonucleosides	<i>Carbohydrate Research</i> , <b>2017</b> , 445, 88-92.
41.	2017	Synthesis, pharmacological evaluation and molecular docking of pyranopyrazole-linked 1,4-dihydropyridines as potent positive inotropes.	<i>Molecular Diversity</i> , DOI: 10.1007/s11030-017-9738-7.
42.	2017	Chemoenzymatic synthesis, nanotization and anti- <i>Aspergillus</i> activity of optically enriched fluconazole analogues.	<i>Antimicrobial agents and chemotherapy</i> , DOI:10.1128/AAC.00273-17.
43.	2018	Protective effects of new antioxidant compositions of 4-methylcoumarins and related compounds with DL-tocopherol and L-ascorbic acid	<i>Journal of the Science of Food and Agriculture</i> , <a href="https://doi.org/10.1002/jsfa.8892">https://doi.org/10.1002/jsfa.8892</a>
44.	2018	Biocatalytic route to C-4'-spiro-oxetano-xylofuranosyl pyrimidine nucleosides.	<i>Biocatalysis and Biotransformation</i> , <a href="https://doi.org/10.1080/10242422.20">https://doi.org/10.1080/10242422.20</a>

			18.143816
45.	2018	Synthesis and Anti-tubercular Activity of 1-β-D-Ribofuranosyl-4-coumarinyloxymethyl- / -coumarinyl-1,2,3-triazole	<i>European Journal of Medicinal Chemistry</i> , <b>2018</b> , 150, 268-281
46.	2018	Synthesis of novel 3'-azido-3'-deoxy-α-L-ribo configured nucleosides: A comparative study between chemical and chemo-enzymatic methodologies.	<i>Nucleoside, Nucleotide and Nucleic Acids</i> , <a href="https://doi.org/10.1080/15257770.2018.1460476">https://doi.org/10.1080/15257770.2018.1460476</a>
47.	2018	Synthesis of Novel 1-Glycosyl-4-aminomethyl-1,2,3-triazoles.	<i>Chemistry of Heterocyclic Compounds</i> , <b>2018</b> , 54(3), 362-368.
48.	2018	Synthesis of novel unsymmetrical coumarinyl-1,4-dihydropyridines	<i>Synthetic Communications</i> , <a href="https://doi.org/10.1080/00397911.2017.1416638">https://doi.org/10.1080/00397911.2017.1416638</a>
49.	2018	Design and synthesis of fluorescent symmetric bis-triazolyated-1,4-dihydropyridines as potent antibreast cancer agents	<i>Synthetic Communications</i> , <a href="https://doi.org/10.1080/00397911.2017.1422521">https://doi.org/10.1080/00397911.2017.1422521</a>
50.	2018	Mono and dihydroxy coumarin derivatives: Copper chelation and reduction ability	<i>Journal of Trace Elements in Medicine and Biology</i> , 2018, 46, 88-95
51.	2018	Design, Synthesis and Evaluation of 1H-1,2,3-Triazol-4-yl-methyl Tethered 3-Pyrrolylisatins as Potent Anti-Breast Cancer Agents	<i>ChemistrySelect</i> , 2018, 3, 5263 – 5268
52.	2018	Methyl-accepting chemotaxis like Rv3499c (Mce4A) protein in Mycobacterium tuberculosis H37Rv mediates cholesterol-dependent survival	<i>Tuberculosis</i> , 2018, 109, 52-60
53.	2018	PDIM and SL1 accumulation in Mycobacterium tuberculosis is associated with mce4A expression	<i>Gene</i> , 2018, 642, 178-187

#### Patents

1. Regioselective Acylation of Nucleosides **Ashok K Prasad**, Virinder S Parmar, Rajendra K Saxena and Gaurav Shakya, PCT: WO2011 / 030353 (**International PCT Application No. PCT/IN2010/000594**).
2. Regioselective Acylation of Nucleosides **Ashok K Prasad**, Virinder S Parmar, Rajendra K Saxena and Gaurav Shakya, *Indian Patent Application No. 1885/DEL/2009*.
3. Dihydropyrimidinone compounds for the treatment of cardiovascular diseases and process for preparing the same VS Parmar, HG Raj and **Ashok K Prasad International Patent Application No. PCT/IN2009/000344**.
4. Coumarin Compounds for the treatment of Cardiovascular diseases and a process for preparing the same VS Parmar, HG Raj, SC Jain and **Ashok K Prasad International Patent Application No. PCT/IN2009/000359**.
5. Dihydropyrimidinone compounds for the treatment of cardiovascular diseases and process for preparing the same VS Parmar, HG Raj and **Ashok K Prasad Indian Patent Application 1414/DEL/2008**.
6. Coumarin Compounds for the treatment of Cardiovascular diseases and a process for preparing the same VS Parmar, HG Raj, SC Jain and **Ashok K Prasad Indian Patent Application 1495/DEL/2008**.

7. Coumarin Compounds for the Treatment of Mycobacterial Infections. Virinder S Parmar, Ashok K Prasad, Sunil K Sharma, HG Raj, Rashmi Tandon and Mridula Bose *International PCT Application No. PCT/IN2012/000242*.

#### Conference Presentations

1. Novel Anti-inflammatory Molecules from *Piper* Species at "Perspective and Challenges in Chemical and Biological Sciences" organized by IASST(Guwahati) and ISCBC(Lucknow), Guwahati, 28-30<sup>th</sup> Jan. 2012.
2. Glucose to Modified Nucleosides and pH sensitive Polymer for Drug Delivery Applications at "Frontiers in Pharmaceutical Sciences: Global Perspectives" organized by University of Rhode Island, USA, 28-30<sup>th</sup> Sept. 2012.
3. Glucose to pH sensitive Sugar-PEG Based Polymer and LNA Monomers: A Biocatalytic Approach at Department of Chemistry, Punjab University, 13-14<sup>th</sup> Feb. 2012.
4. Novel Nucleic Acid Architecture: Towards Antisense Drug Development at "Medicinal Chemistry and Pharmaceutical Sciences" organized by NIPER(RBL)-CDRI, Lucknow, 23-25<sup>th</sup> Feb. 2012.
5. Glucose to LNA and PEGylated Polymers for Targeted Drug Delivery Applications: Biocatalytic Approach at "National Seminar on Recent trends in Chemistry" organized by department of Chemistry, Sri Venkateshwara College, University of Delhi, 20-22 March 2012.
6. Biocatalysis: Synthesis of LNA and Sugar-PEG Based Co-Polymer for Drug Delivery Applications. Lucknow Univ. March 2012.
7. Greener Methodologies for Synthesis of LNA and Sugar-PEG Based Co-Polymer for Drug Delivery Applications. Professional Development Course, BHU, Varanasi, March 2012.
8. Natural Products and Their Analogs as Anti-inflammatory and Anti-TB Agents, BHU, Varanasi, March 2012.
9. Glucose to LNA, Nonionic Nucleoside Dimers and Sugar-PEG Based Co-Polymer for Drug Delivery Applications, Department of Chemistry, BITS, Pilani, May 2012.
10. Glucose to Modified Nucleosides and pH Sensitive Polymers for Drug Delivery Applications in National Conference CARBO XXVII on Prospects and Perspectives of Glycoscience and Allied Technology held at CFTRI, Mysore on 11 - 14 December 2012.
11. Chemoenzymatic Synthesis of Nucleosides and pH sensitive Sugar-PEG Co-Polymer of Importance at DRDE, Gwalior, Feb. 2013.
12. Glucose to Nucleosides and pH sensitive Sugar-PEG Based Co-Polymer of Importance: A Biocatalytic Approach at "Catalysis applied to biomass-towards sustainable processes and chemicals" organized by Universite De Technologie De Compiègne, France, 12-13<sup>th</sup> March 2013.
13. at "21<sup>st</sup> ISCB International Conference (ISCBC- 2015) organized by CDRI Lucknow, 25-28 February 2015.
14. Biocatalytic route to therapeutically important sugar modified nucleosides at "Catalysis applied to biomass-towards sustainable processes and chemicals" II organized by Universite De Technologie De Compiègne, France, 27-28<sup>th</sup> March 2014.
15. Glucose to Novel Nucleosides and Macrocyclic Architectures, MS University Baroda, Badodara, 17 July 2015.



16. Glucose to Novel Nucleosides and Macromolecules of Importance, Gorakh University, 13 July 2015.
17. Sugar Based Chiral [2]Pseudorotaxane and Amphiphiles for Drug Delivery Applications. ICMR Laboratory, Bhubaneswar, April 2015.
18. Sugar Modification for the Synthesis of Novel Nucleosides, Amphiphiles and Macromolecules of Importance. Indi-Japan International Symposium at JAIST, Japan, 2-3 March 2015.

#### Total Publication Profile

Books: 1

In Indexed/ Peer Reviewed Journals 40

Patent 7

Conference Presentations 18

#### Professional Societies Memberships

- Membership of "International Society for Nucleosides, Nucleotides and Nucleic Acids", France
- Life membership of "Indian Science Congress Association", Calcutta
- Life member of "Chemical Research Society of India (CRSI)", Bangalore
- Life member of "Association of Carbohydrate Chemists and Technologists (India)"
- Life member of "Indian Society of Chemists and Biologists", Lucknow
- Life Member of "Biotechnology Research Society of India"

#### Projects (Major Grants / Collaborations)

Principal Investigator, DU-DST Purse Grant Research Project entitled "Enzyme-mediated transformations of potential applications in environment and pharmaceutical sectors" (2010-2013).

Principal Investigator, DBT Research Project entitled "Biocatalytic synthesis and development of PEG-sugar based polymeric architectures for applications in drug delivery" (2009-2013).

Principal Investigator, NMPB Research Project entitled "Development of natural products/natural-product based cardiovascular agents" (2010-2013).

Co-Principal Investigator, IGSTC Research Project entitled "Chemoenzymatic synthesis and development of biodegradable, structurally persistent core-shell nano-architectures for drug delivery applications" (2012-15).

Principal Investigator, DRDO Research Project entitled "Chemical Synthesis and Characterization of 7,8-Diacetoxy-4-Methylthiocoumarins for Evaluation of its in vitro efficacy in Radiprotection and Mitigation" (2012-13).

Principal Investigator, DRDO Research Project entitled "Synthesis and Studies on Fire Extinguishing Capabilities of Some Fluorophosphonodiester and Fluorophosphotriesters" (2013-15).

Principal Investigator, DRDO Research Project entitled "Synthesis Characterization, Cytotoxicity and Cellular Uptake Study of Sugar-PEG Based Amphiphiles as Potential Delivery Agents" (2015-16).

Principal Investigator, Rasayan research project entitled "Synthesis of nucleoside-based bioactive compounds and their precursors" (2015-16).

Other Details

**(Signature of Faculty Member)**

**(Signature & Stamp  
of Head of the Department)**