

<p><b>Name and Designation:</b>  <b>Dilip D. Dhavale</b>  <b>Professor in Organic Chemistry</b>  <b>Department of Chemistry</b>  <b>University of Pune</b>  <b>Pune – 411 007</b></p>		<p><b>Photograph:</b></p>
<p><b>Academic Background:</b>  <i>Ph.D. ( Department of Chemistry, University of Pune, Pune, 1984)</i>  <i>M.Sc. (Department/University, Abasaheb Garware College, (affiliated to University of Pune), Pune, 1976)</i>  <i>B.Sc. (University of Pune, 1974)</i></p>	<p><b>Professional Experience:</b>  <i>PDF: University of Bologna, Italy (1986-87)</i></p>	
<p><b>Research Interests:</b></p> <ul style="list-style-type: none"> <li>• Synthetic Organic Chemistry</li> <li>• Carbohydrate Chemistry</li> <li>• Natural Products</li> <li>• Photochemistry</li> <li>• Carbenoid chemistry</li> <li>• Glycoconjugates</li> <li>• Polyhydroxy-polyamids</li> </ul>		
<p><b>Awards and Fellowships:</b></p> <ul style="list-style-type: none"> <li>• <b>Fellow of the Indian Academy of Sciences, (F. A. Sc.), Bangalore, 2009</b></li> <li>• <b>Fellow of the Maharashtra Academy of Sciences, 2003</b></li> <li>• <b>Principle V. K. Joag Award for outstanding contribution in Teaching and Research, University of Pune, February, 2008</b></li> <li>• <b>Prof. M. S. Wadia, Endowment Lecture Award, 2005</b></li> <li>• <b>Bronze Medal of “Chemical Research Society of India, Bangalore” for major research contribution in Organic Chemistry, February 2003</b></li> <li>• <b>Royal Society of Chemistry, UK, International Author’s Award 2001</b></li> <li>• <b>Member, Indo-Taiwan delegation (Collaborative Research), Jan. 2007</b></li> <li>• <b>Member, Indo-Korea delegation (Collaborative Research), July 2003</b></li> <li>• <b>Visiting Professor, University of Regensburg, Germany, 2005</b></li> <li>• <b>Visiting Professor, University of Bologna, Italy, 1991-1993</b></li> <li>• <b>Life Member, High Energy Materials Society of India, 2003</b></li> </ul>		

### **Research Schemes, collaborative ventures and consultancy )**

1. **CSIR (Rs. 25,00,000/-)**
2. **DST (Rs. 15,00,000)-**
3. **UoP (Rs. 3,00,000)**

### **International Collaboration:**

#### **Indo-French**

**University of Regensburg, Germany (INDIGO Programme)**

**University of Bologna, Italy (Erasmus-Mundus Programme)**

**University of Kwa-Zulu Natal (South Africa)**

### **Research Publications (last 10 years)**

1. Synthesis of azepane and nojirimycin iminosugars: the Sharpless asymmetric epoxidation of D-glucose-derived allyl alcohol and highly regioselective epoxide ring opening using sodium azide  
Vrushali H. Jadhav, Omprakash P. Bande, Vedavati G. Puranik, **Dilip D. Dhavale\*** *Tetrahedron: Asymmetry*, **2010**, 21, 163-170.
2. Synthesis of eight-membered iminocyclitols from D-glucose  
Vrushali H. Jadhav, Omprakash P. Bande, Vedavati G. Puranik, **Dilip D. Dhavale\***  
*Tetrahedron* **2010**, 66, 2830-2834.
3. Stereo-controlled Approach to Pyrrolidine Iminosugar C-Glycosides 1,4-dideoxy-1,4-imino-L-allitol Using a D-Mannose Derived Cyclic Nitrone  
Omprakash P. Bande, Vrushali H. Jadhav, Vedavati G. Puranik and **Dilip D. Dhavale,\*** Marco Lombardo *Tetrahedron Letter* **2009**, 50, 6906-6908.
4. Synthesis and Conformational Study of Chiral Oxepines: The Baylis-Hillman Reaction and RCM Approach with Sugar Aldehyde  
Vrushali H. Jadhav, Omprakash P. Bande, Rahul V. Pinjari, Shridhar P. Gejji Vedavati G. Puranik, **Dilip D. Dhavale\***  
*Journal of Organic Chemistry*, **2009**, 74, 6486-6494.
5. Highly Diastereoselective 1,3-Dipolar Cycloaddition of a D-Galactose Derived Nitrone with Dimethyl Maleate: Synthesis of Polyhydroxylated Perhydroazaazulenes.  
Omprakash P. Bande, Vrushali H. Jadhav, Vedavati G. Puranik, **Dilip D. Dhavale\***  
*Synlett*, **2009**, 12, 1959-1963.
6. Rhodium Carbenoid Induced [1,2]-migration in an L-Lyxo-Configurated  $\alpha$ -Diazo  $\alpha$ -Keto Ester: Synthesis of a new Griseolic Acid Analogue  
Namdeo N. Bhujbal, K. S. Ajish Kumar, **Dilip D. Dhavale\***  
*Synthesis*, **2009**, 14, 2423-2429.
7. Catechuic acid and Ethyl 2,4,5-trihydroxy benzoate form D-Glucose  
Namdeo N. Bhujbal, Omprakash P. Bande and **Dilip D. Dhavale\***  
*Carbohydrate Research* **2009**, 344, 734-738.
8. Chiron Approach to the Synthesis of (2S,3R)-3-Hydroxypipeolic Acid and (2R,3R)-3-Hydroxy-2-hydroxymethylpiperidine from D-Glucose  
Kalamkar, N. B.; Kasture, V. M.; **Dhavale, D. D.\***  
*Journal of Organic Chemistry*, **2008**, 73, 3619-3622.
9. Protonated Arginine and Lysine as Catalysts for the Direct Asymmetric Aldol Reaction in Ionic

Liquids.

Marco Lombardo, Srinivasan Easwar, Filippo Pasi, Claudio Trombini\*, **Dilip D. Dhavale**  
*Tetrahedron*, **2008**, 64, 9203-9207.

10. Synthesis of five and six membered aminocyclitols: stereoselective Michael and Henry reaction approach with D-glucose derived  $\alpha$ - $\beta$ -unsaturated ester.  
Chaitali Chakraborty, Vinod P. Vyawahare, V. G. Puranik, **Dilip D. Dhavale\***  
*Tetrahedron*, **2008**, 64(40), 9574-9580.
11. Synthesis of  $\gamma$ -hydroxy alkyl substituted iminosugars from D-glucose  
Rajendra S. Mane, K S. Ajish Kumar, and **Dilip D. Dhavale\***  
*Journal of Organic Chemistry*, **2008**, 73(8), 3284-3287.
12. Efficient Synthesis of (+)-1,8a-Tri-epi-swainsonine, (+)-1,2-Di-epi-lentiginosine, (+)-9a-epi-Homocastanospermine and (-)- 9-Deoxy-9a-epi-homocastanosper-mine from a D-Glucose-Derived Aziridine Carboxylate and Study of their Glycosidase Inhibitory Activities.  
K S. Ajish Kumar, Vinod D Chaudhari, and **Dilip D. Dhavale\***  
*Organic and Biomolecular Chemistry*, **2008**, 3, 703-711.
13. Synthesis of 1-Deoxy-1-hydroxymethyl- and 1-Deoxy-1-*epi*-hydroxymethyl Castanospermine as New Potential Immunomodulating Agents  
Vinod P. Vyawahare, Chaitali Chakraborty, Viswanath Maity, Subrata Chattopadhyay, Vedavati G. Puranik, and **Dilip D. Dhavale\***  
*Journal of Medicinal Chemistry*, **2007**, 50, 5519-5523.
14. Intra-molecular Nitrone-Olefin Cycloaddition of D-Glucose Derived Allylic Alcohol: Synthesis of New Aminocyclohexitols  
Chaitali Chakraborty, Vinod P. Vyawahare and **Dilip D. Dhavale\***  
*Tetrahedron*, **2007**, 63, 11984.
15. Synthesis and Glycosidase Inhibitory Studies of Pentahydroxy Indolizidine Alkaloids: D-Glucose Derived Aziridine Carboxylate Approach  
K S. Ajish Kumar, Vinod D Chaudhari, and **Dilip D. Dhavale\***  
*European Journal of Organic Chemistry*, **2007**, 4895-4901
16. 1,3-Dipolar cycloaddition reaction of a D-galactose derived nitrone with allyl alcohol: synthesis of polyhydroxylated perhydroazaazulene alkaloids.  
Omprakash P. Bande, Vrushali H. Jadhav, Vedavati. G. Puranik, and **Dilip D. Dhavale\***  
*Tetrahedron: Asymmetry*, **2007**, 18, 1176-1182.
17. A facial method for trimethylsilylation of alcohols using hexamethyldisilazane and ammonium thiocyanate under neutral condition.  
Vrushali H. Jadhav, K. S. Ajish Kumar, Vinod D. Chaudhari, and **Dilip D. Dhavale\***  
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18. Synthesis characterization and thermolysis studies on new derivatives of 2,4,5-trinitroimidazoles: Potential insensitive high energy materials.  
H.S. Jadhav, M.B. Talawar, R. Sivabalan , **D.D. Dhavale**, S.N. Asthana, V.N. Krishnamurthy  
*Journal of Hazardous Materials*, **2007**, 143, 192–197
19. Rh(II)- Catalyzed Intramolecular N–H Insertion of D-Glucose-Derived  $\gamma$ -Amino  $\alpha$ -Diazo  $\beta$ -Ketoester: Synthesis of Pyrrolidine Iminosugars.  
Vinod P. Vyawahare, Subrata Chattopadhyay, V. G. Puranik, and **D D. Dhavale\***  
*Synlett*, **2007**, 4, 559–562.

20. Polyhydroxylated homoazepanes and 1-deoxy-homonojirimycin analogues: synthesis and glycosidase inhibition study.  
 Shankar D. Markad, Narayan S. Karanjule, Tarun Sharma, Sushma G. Sabharwal and **Dilip D. Dhavale\***  
*Organic and Biomolecular Chemistry*, **2006**, 4, 3675-3680
21. Synthesis of Pentahydroxy Indolizidine Alkaloids using Ring Closing Metathesis: Attempts to Find the Correct Structure of Uniflorine A  
 Narayan S. Karanjule, Shankar D. Markad and **Dilip D. Dhavale\***  
*Journal of Organic Chemistry*, **2006**, 71, 6273-6276
22. Synthesis of tetrahydroxy perhydroaza-azulenes:tandem Johnson–Claisen rearrangement Johnson–Claisen rearrangement'.  
 Shankar D. Markad, Narayan S. Karunjule, Tarun Sharma, Sushma G. Sabharawal, Vedavati G. Puranik, and **Dilip D. Dhavale\***  
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23. Intramolecular 5-*endo*-Trig Aminomercuration of  $\beta$ -Hydroxy- $\gamma$ -alkenyl amines: Efficient Route to a Pyrrolidine Ring and Its Application for the Synthesis of (+)-Castanospermine and Analogues.  
 Karanjule, N. S.; Markad, Shankar. D.; Shinde, Vaishali. S.; **Dhavale, Dilip D\***  
*Journal of Organic Chemistry* **2006**, 71, 4667-4670.
24. Short and efficient synthesis of (2S,3R,4R,5R) and (2S,3R,4R,5S) tetrahydroxy azepanes via the Henry reaction approach.  
 Chaitali Chakraborty and **Dilip D. Dhavale\***  
*Carbohydrate Research* **2006**, 341, 912-917.
25. Synthesis of (-)-Lentiginosine, its 8a-Epimer and Dihydroxylated Pyrrolizidine Alkaloid from D-Glucose.  
 Vinod D. Chaudhari, K. S. Ajish Kumar, and **Dilip D. Dhavale\***  
*Tetrahedron*, **2006**, 62, 4349-4354.
26. Synthesis and Evaluation of Glycosidase Inhibitory Activity of *N*-Butyl 1-deoxy-D-glucosanojirimycin and *N*-Butyl 1-deoxy-L-*ido*-homonojirimycin.  
 Shankar D. Markad, Narayan S. Karanjule, Tarun Sharma, Sushma G. Sabharwal and **Dilip D. Dhavale\***  
*Bioorganic and Medicinal Chemistry* **2006**, 14, 5535-5539.
27. Carbohydrates to Azasugars: Synthesis and Glycosidase Inhibition Study.  
**Dilip D. Dhavale,\*** Shankar D. Markad and Narayan S. Karanjule  
*Proc. Indian National Science Academy*, **2005**, 71, NO. 3 & 4, 155-173.
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 H. S. Jadhav, **D. D. Dhavale**, S. N. Asthana, V. N. Krishnamurthy, M. B. Talawar  
*Indian Journal of Engineering and Material Science*, **2006**, 13 (1) 80-86.
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 H. S. Jadhav, **D. D. Dhavale**, S. N. Asthana, V. N. Krishnamurthy, M. B. Talawar  
*Indian Journal of Chemical Technology*, **2006**, 13 (1), 41-46.
30. An efficient synthesis of D-erythro and D-threo sphingosine from D-glucose: olefin cross

- metathesis approach  
 Vinod Chaudhari, Ajish Kumar K. S, **Dilip D. Dhavale\***  
*Organic letter*, **2005**, 7, 5805-5807.
31. Aziridine carboxylate from D-glucose: Synthesis of Polyhydroxylated Piperidine, pyrrolidine alkaloids and study of their glycosidase inhibition.  
**Dilip D. Dhavale\***, Ajish Kumar K. S. Vinod Chaudhari, Tarun Sharma, Sushma G. Sabharwal and J. Prakashareddi.  
*Organic and Biomolecular Chemistry*, **2005**, 3, 3720-3726
32. Synthesis and evaluation of glycosidase inhibitory activity of 5-hydroxy substituted isofagomine analogues.  
 M. M. Matin, Tarun Sharma, Sushma G. Sabharwal and **Dilip D. Dhavale\***  
*Organic and Biomolecular Chemistry*, **2005**, 3 (9), 1702-1707.
33. 3-Bromo-propenyl acetate in organic synthesis: an expeditious route to 3-alkyl-4 acetoxy-5-iodomethylisoxazolidines.  
 Marco Lombardo, Gabriele Rispoli, Sebastiano Licciulli, Claudio Trombini\* and **Dilip D. Dhavale**  
*Tetrahedron Letters*, **2005**, 46(22), 3789-3792
34. 1,3- Dipolar Cycloaddition Reaction of D-Glucose Derived Nitrone with Allyl alcohol: Synthesis of New Analogues of 1-Deoxycastanospermine.  
 Narayan S. Karunjule, Shankar D. Markad, Tarun Sharma, Sushma G. Sabharawal, Vedavati G. Puranik, and **Dilip D. Dhavale\***  
*Journal of Organic Chemistry*, **2005**, 70, 1356.
35. Synthesis, characterization and thermal behaviour of hydrazinium nitroformate (HNF) and its new N-alkyl substituted derivatives.  
 H. S. Jadhav, **Dilip D. Dhavale**, S. N. Asthana and V. N. Krishnamurthy and M. B. Talawar  
*Indian Journal of Chemical Technology*, **2005**, 12 (2), 187-192.
36. The 5-*Endo*-trig Cyclization of D-Glucose Derived  $\alpha$ -Alkenylamines with Mercury (II) Salt: Synthesis of 1-Deoxy-castanospermine and its 8a-*epi*-analogue  
**Dilip D. Dhavale\*** and S. M. Jachak  
*Molecules* **2005**, 10, 893-900.
37. Asymmetric Dihydroxylation of D-Glucose Derived  $\alpha$  ,  $\beta$ Unsaturated Ester: Synthesis of Azepane and Nojirimycin Analogues.  
**Dilip D. Dhavale\***, Shankar D. Markad, Narayan S. Karunjule and PrakashaReddi      *Journal of Organic Chemistry*, **2004**, 69, 4760-4766.
38. Intramolecular conjugate addition of benzylamine to D-glucose derived  $\alpha$   $\beta$ -Unsaturated ester: An efficient synthesis of trihydroxylated pyrrolidine alkaloids as potential glycosidase inhibitors  
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*Tetrahedron Letters*, **2004**, 45, 8363
39. Piperidine Homoazasugars: Natural Occurrence, Synthetic Aspects and Biological Activity Study.  
**Dilip D. Dhavale\*** and Mohammed M. Matin  
*Arckivoc*, **2004**, 110-132.
40. Synthesis and Evaluation of Glycosidase Inhibitory Activity of Octahydro-2H-pyrido [1,2-a] pyrimidine and Octahydro-imidazo[1,2-a] pyridine Bicyclic Diazasugars  
**Dilip D. Dhavale\***, Mohammed M. Matin, Tarun Sharma and Sushma G. Sabharwal.  
*Bioorganic and Medicinal Chemistry*, **2004**, 12/15, 4039-4044.

41. Synthesis of trihydroxy quinolizidine alkaloids: 1,3- addition reaction of allylmagnesium bromide to a sugar nitrone.  
**Dilip D. Dhavale\***, Santosh M. Jachak, Navnath P. Karche and Claudio Trombini  
*Tetrahedron*, **2004**, *60*, 3009-3016.
42. An Efficient Synthesis of Trihydroxy Quinolizidine Alkaloids using Ring-Closing Metathesis.  
**Dilip D. Dhavale\***, Santosh M. Jachak, Navnath P. Karche and Claudio Trombini  
*Synlett*, **2004**, 1541.
43. Synthesis and characterisation of nitroguanidine based nitrate and perchlorate salts of -5-nitro-2-nitroiminohexahydro-1,3,5-triazine.  
H.S.Jadhav, M. B. Talawar, **D. D. Dhavale**, S. N. Asthana, V. N. Krishnamurthy  
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44. Selective Sulfenylation of 4-C-Hydroxymethyl- $\alpha$ -L-threo-pento-1,4-furanose: synthesis of Bicyclic Diazasugars  
**Dilip D. Dhavale\*** and Mohammed M. Matin  
*Tetrahedron*, **2004**, *60*, 4275-4281.
45. An Expedited Synthesis of a (3S, 4S, 5R)-trihydroxyazepane  
**Dilip D. Dhavale\***, Vinod. D. Chaudhari and Jayant N. Tilekar. *Tetrahedron Letters*, **2003**, *44*, 7321-7323.
46. N-Hydroxyethyl-Piperidine and -Pyrrolidine Homoazasugars. Preparation and Evaluation of Glycosidase Inhibitory Activity  
**D. D. Dhavale\***, M. M. Matin, T. Sharma and S. G. Sabharwal  
*Bioorganic and Medicinal Chemistry* **2003**, *11*, 3295-3305.
47. Syntheses of Griseolic Acid Analogues: Regioselective  $\beta$ -Facial [1,2]-Migration in Rhodium Acetate Catalyzed Reaction of D-Glucose Derived  $\beta$ -Diazo- $\beta$ -keto Ester.  
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*Journal of Organic Chemistry*, **2003**, *68*, 4531-4534.
48. Concise and practical syntheses of (2S, 3R, 4R, 5R) and (2S, 3R, 4R, 5S)-1,6-dideoxy-1,6-iminosugars  
Jayant N. Tilekar, Nitin T. Patil, Harishchandra S. Jadhav and **Dilip D. Dhavale\*** *Tetrahedron* **2003**, *59*, 1873-1876.
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H. S. Jadhav, **D. D. Dhavale**, M. B. Talawar, S. N. Asthana and V. N. Krishnamurthy  
*New Trends of Energetic Materials*, **2003**, *06*, 153-159.
50. Chiron approaches to polyhydroxylated piperidines: promising glycosidase inhibitors.  
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52. Studies on Isolation, Characterization and Plasmid (pUPI126) Mediated Indole-3-Acetic Acid (IAA): Production in Acinetobacters from Rhizosphere of Wheat.  
Huddedar S.B., Shete A.M., Tilekar J. N., S.D. Gore, **Dhavale D. D.** and Chopade B. A.  
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Shriniwas L. Kelkar, **Dilip D. Dhavale** and Jeevan G. Chandwadkar  
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57. A short and efficient synthesis of 1-deoxy-castanospermine and 1-deoxy-8a-epi-castanospermine  
Nitin T. Patil, Jayant N. Tilekar and **Dilip D. Dhavale\***  
*Tetrahedron Letters*, **2001**, 42, 747-749.
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Patil Nitin T. Tilekar J. N., **Dhavale, D. D.\***  
*Journal of Organic Chemistry*, **2001**, 66, 1065-1074.
61. Synthesis of nitrogen rich organic compounds and study their spectral and thermal properties.  
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62. Microscale experiments in chemistry - the need of the new millennium.Experiments Which Brings Theory Closer to Laboratories  
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Vijaya N. Desai, Nabendu N. Saha and **Dilip D. Dhavale\***  
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66. Organic Chemistry in Capillaries.  
Bharat G. Mahamulkar, **Dilip D. Dhavale** and Shriniwas L. Kelkar  
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#### **Patents:**

Plasmid encoding IAA and a method thereof.

1. Chopade B.A., Huddedar S.B., Shete A.M., Tilekar J. N., S.D. Gore, **Dhavale D.D.**  
*US Patent*, **2008**, 7341868.