

**Name: Dr. SANTOSH L. GAONKAR**

**Address: Dept. of Chemistry,**

**Manipal Institute of Technology, Manipal**

**Curriculum Vitae**

photograph

1. **Designation :** Associate Professor
2. **Qualification:** M. Sc., Ph.D.

###  **Title of thesis for Doctoral degree:**

###  **"Synthesis of biologically active heterocycles via cycloaddition reactions"**

 Postdoctoral Experience: 2.5 Years

1. **Years of Experience – Teaching, Research, Industrial, Consultancy: 15 years**
2. **Area of Specialization / Expertise / Research: Organic Chemistry, Bio-organic Medicinal chemistry**
3. **Association / Contribution / Recognition at Global Level: Association with AIST, Japan**
4. **Association / Contribution / Recognition in the Country: Association with University of Mysore**
5. **Individual Achievement / Awards / Recognitions:**
6. **JSPS (Japan society for the promotion of science) Postdoctoral Fellow at National Institute of advanced Industrial science and technology (AIST), Japan. (Nov. 2008-Nov. 2010).**
7. Cash reward of Rs. 1 Lakh from Jubilant Organosys Ltd., for the development of non-infringing process for Citalopram, an anti-depressant drug in record time. Patent has been filed.
8. **Name of the Premier Institutions / Organizations / Industries associated in the past and in brief the contributions made which had resulted in visible change / outcome**

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| --- | --- | --- |
| Institute/Organization | Position held | Resposibility/Contribution |
| Manipal Institute of Technology, Manipal University, Manipal, India | Associate professor | Teaching UG and PG students, Guide PhD students and PG projects. |
| Astra Zeneca Ltd, Bangalore (Feb 2011-June 2011) | Postdoctoral Research scientist | Drug discovery and development |
| National Institute of Advanced Industrial Science and Technology (AIST), Japan (Nov. 2008-Nov. 2010) | JSPS Postdoctoral Fellow | Applications of Microwave technology for Drug development |
| Sequent Scientific Ltd., Mangalore, India. (Dec. 2006-Oct. 2008) | Manager -R&D | Development of APIs Praziquantel and Carprofen and scale-up |
| Jubilant Organosys Ltd., Mysore, India [USFDA company]. (July 1999-Dec. 2006). | Research Scientist | Novel process Development for Anti-depressant drug Citalopram. The technology has been patented, which generated huge revenue to the company. 6 patents have been filed. |

1. **Membership of the Professional bodies**
2. Member Chemical society of Japan
3. **Reviewer of the journals / conferences**

Reviewer for International journal:

1. Medicinal Chemistry Research (Springer)

1. European Journal of Medicinal Chemistry (Elsevier)
2. Chemistry of Heterocyclic compounds (Springer)
3. Journal of Heterocyclic Chemistry (Wiley)
4. **Book written /writing**

**Nil**

1. **Paper publication details – Journals (National & International), Conferences (N & I)**

**Patents: 06**

**International Journal publications: 55**

**National conferences: 08**

**International conferences: 04**

Patents and Research Publications

**Patents: 06**

1. **Process for the Preparation of Escitalopram or its acid addition salts**

 International Publication No. WO 2006/106531

 Inventors: **S. L. Gaonkar**, Prasanjit Das, Narahari Babu and S. G. Manjunatha

2. **Process for the isolation of high purity crystalline Citalopram base**

 United States Patent No. US 7255741 B2

 Inventors: V. S. Goud, **S. L. Gaonkar**, S. Thomas, S. G. Manjunatha, A. K. Kulkarni, and A. Narahari Babu.

3. **One pot synthesis of Citalopram from 5-Cyanophthalide**

 United States Publication US 2008/0119662 A1

 Inventors: A. Narahari Babu, V. S. Goud, **S. L. Gaonkar**, S. G. Manjunatha and A. K. Kulkarni

4. Improved process for the preparation of 5-substituted-1-(4' fluorophenyl)-1,3- dihydroisobenzofurans.

 Patent No. GB 2385051B2 ; United States Publication US 2008/0116522 A1

 Inventors: A. Narahari Babu, V. S. Goud, **S. L. Gaonkar**, S. G. Manjunatha, and A. K. Kulkarni.

5. A method for the preparation of citalopram acid addition salts

 International Publication No. WO 2005/070914 A1

 Inventors: A. Narahari Babu, V. S. Goud, **S. L. Gaonkar**, C. Kishore, Anil Kumar, Devaraju, S. Thomas, S. G. Manjunatha, A. K. Kulkarni and J. M. Khanna.

6. **Process** **for preparing 5-substituted-1-(4**' fluorophenyl)-1,3- dihydroisobenzofurans

 International Publication No. WO 2006/066185

Inventors: A. Narahari Babu, V. S. Goud, **S. L.Gaonkar**, S. G. Manjunatha, and A. K. Kulkarni

**Research Publications (International Referred Journals): 55**

1. B. Namratha, Nitnikumar S. Shetty, **S. L. Gaonkar**\*, Synthesis and antibacterial screening of few new 5-membered heterocyclic sugar hydrazones, *Asian Journal of Pharmaceutical and Clinical Research,* 9(3), 0000, **2016**
2. B. Namratha, Dinesh Bilehal, V. ShyamKumar, **S. L. Gaonkar**\*, Synthesis of new 4[4-(4-nitrophenoxy)phenyl]-5-substituted-2H-1,2,4-triazole-3-thiones and their evaluation as anthelmintics, *Research on Chemical Intermediates,* 42, 1885, **2016.**
3. Namratha B, **S. L. Gaonkar**, Anthelmintic and Antibacterial Screening of A New Series of *N*-[4-(4-Nitrophenoxy)phenyl]-4-(substituted)-1,3-thiazol-2-amines, *Russian Journal of Bioorganic Chemistry*, Vol. 42, No. 2, pp. 210–214, **2016**.
4. Raghu N, Nanjunda Swamy, Raghu Ram A, Basappa, **S. L. Gaonkar**, Ranjith 1, George W. Yip, B. S. Priya, *A new class of isobenzofuran-5-carboxamide derivatives: synthesis, studies on induction of apoptosis and inhibition of cancer cell proliferation*, Asian J. Biochem. and Pharma. Res., 5(2), **2015***.*
5. Hemant Hegde, **S. L. Gaonkar**, N. S. Shetty, *Bronsted base catalysed efficient one pot 3 component synthesis of dihydropyrimidinone derivatives* J. Chem. Pharm. Res.,7(9), 526-531, **2015**.
6. Namratha B, **S. L. Gaonkar**, *A facile synthesis of N-substituted 2,5-dimethylpyrroles with saccharin as a green catalyst*, **Chemistry of Heterocyclic Compounds***,* *51*(4), 320–323, **2015.**
7. Naveen B, **S. L. Gaonkar**, N. S. Shetty, *Synthesis of some new thienopyrimidines and triazole fused thienopyrimidines and their antimicrobial activities*, Int. J. Chem. Pharm. Sci, 6 (1), 58-62, **2015**
8. Namratha B, **S. L. Gaonkar**, 1,2,4-triazoles: *Synthetic strategies and pharmacological profiles*, Int. J. Pharm. Pharm. Sci, 6 (8), 73-80, **2014**.
9. Namratha B, **S. L. Gaonkar,** Synthesis and Antimicrobial Screening of Novel 4-Substituted Phenyl-5-[1-(4-fluorophenyl)-1,3-dihydroisobenzofuran-5-yl]- 2H-1,2,4-triazole-3-thiones, ISRN Medicinal Chemistry, Volume 2014, Article Id 439243, 7 pages.
10. Namratha B, N. S Shetty, Atmesh S Pednekar and **S. L Gaonkar,** *Synthesis and characterization of novel 3-substituted-2-butyl-5-chloro-imidazol-4-carbaldehyde derivatives***, Int. J. Chem and Pharm Sci**., 5(2), 139-144, **2014.**
11. **S. L. Gaonkar** and K. M. Lokanatha Rai. *Applications of azoalkenes in the synthesis of fused ring pyridazines derivatives,* **J. Heterocyclic Chem***., 52,* 1346-1348*,*  **2015.**
12. **S. L. Gaonkar**, Chuljin Ahn, Princia, and N.S. Shetty, *Microwave-Assisted and Conventional Synthesis of Benzothieno [3,2-e] [1,3,4]triazolo[4,3-c]pyrimidines: A Comparative Study*, **J. Korean Chem. Soc.**, 58, 388-392, **2014.**
13. **S. L. Gaonkar**, Namratha B, N. S. Shetty, and H Shimizu, *Microwave-assisted synthesis and evaluation of N-substituted thiazolidine-2,4-dione derivatives as antimicrobial agents*, ***Interact Med Chem***., 2, 2, **2014**.
14. Namratha B., N. S. Shetty, Janice N D’Souza, **S. L.** **Gaonkar**, *Synthesis and Characterization of a New Series of 2-(5-bromothiophen-2-yl)-5-substituted-1,3,4-oxadiazoles,* **Res. J. Chem. Sci.**, **3**, 51**. 2013.**
15. N. S. Shetty, **S. L. Gaonkar**, V. V. Pai, Sapna, K. Manvith, *Synthesis and antimicrobial activity of tricyclic thienopyrimidines and 1, 3, 4-triazole fused thienopyrimidines*, **J. Chem. Sci. and Tech.**, 2, 93, **2013.**
16. T. N. Mahadeva Prasad, **S. L. Gaonkar**, K.. Kapoor, V. K. Gupta Rajnikant, H. SHIMIZU**,** *Synthesis and crystal structure of 4-[2-(Methyl-pyridin2-ylamino)ethoxy]-benzaldoxime*

 **Analytical Sciences**, 28, 25-26, **2012**

1. **S. L. Gaonkar**,H. Shimizu. *Microwave assisted solution phase synthesis of novel 2-[4-[2-N-methyl-2-pyridylamino)ethoxy]phenyl]-5-substituted-1,3,4-oxadiazole library*

 **Organic Chemistry International**Volume 2011, Article ID 751894, 5 pages

1. **S. L. Gaonkar**, M. Mahendra, S. Nanjunda Swamy, N. S. Shetty, *Synthesis and Crystal structure studies of Diethyl-(6-chloro-2-carbazolyl)methyl malonate an intermediate in the synthesis of anti-inflammatory drug Carprofen,* **Res. J. Pharmaceutical Sci.**,1, 16**. 2012.**
2. K. Sunitha, M. Hemshekhar, **S. L. Gaonkar**, M. Sebastin et al. Neutralization of Haemorrhagic Activity of Viper Venoms by1-(3-Dimethylaminopropyl)-1-(4-Fluorophenyl)-3-Oxo-1, 3-Dihydroisobenzofuran-5-Carbonitrile

 **Basic & Clinical Pharmacology & Toxicology**, 109, 292–299, **2011**

1. **S. L. Gaonkar** and H. Shimizu. *Microwave assisted synthesis of the antihyperglycemic drug rosiglitazone,* **Tetrahedron,** 66, 3314-3317, **2010**
2. **S. L. Gaonkar** and K. M. Lokanatha Rai. *2-Butyl-5-chloro-3H-imidazole-4-carbaldehyde as a new synthon for the synthesis of fused ring heterocycles via intramolecular 1,3-dipolar cycloaddition reaction,*  **J. Heterocyclic Chem***.,* 47, 543-546, **2010**
3. R. Ningegowda, C. V. Kavitha, B. S. Priya, **S. L. Goankar**, M. V. Tejasvi , K. S. Rangappa, S. Nanjunda Swamy. *Microwave-assisted Solvent-free Synthesis of N-alkyl Benzotriazole Derivatives: Antimicrobial Studies,* **Letters in Drug Design & Discovery,** 6, 502-507, **2009**
4. S. Nanjunda Swamy, C. V. Kavitha, B. S. Priya, **S. L. Goankar**, M. V. Tejasvi and K. S. Rangappa. *Microwave-assisted synthesis of N-alkylated bibenzoimidazolyl derivatives: Antimicrobial studies,* **Letters in Drug Design & Discovery**,6, 380-386, **2009**
5. A. Kumar, S. D’Souza, **S. L. Gaonkar**, K. M. L. Rai and B. P. Salimath. *Antiangiogenic and antiproliferative effects of substituted-1,3,4-oxadiazole derivatives is mediated by down regulation of VEGF and inhibition of translocation of HIF-1 alpha in Ehrlich ascites tumor cells,* **Cancer Chemother. Pharmacol.,** 64, 1221-1233, **2009**
6. **S. L. Gaonkar,** K. M. L. Rai and S. N. Shetty. *Microwave-assisted synthesis and evaluation of anti-inflammatory activity of new series of N-substituted 2-butyl-5-chloro-3H-imidazole-4-carbaldehyde derivatives*

 **Med. Chem. Res.,** 18, 221-230, **2009**

1. M. K. Manjula, K. M. L. Rai, **S. L. Gaonkar**, K. A. Raveesha, S. Satish. [*Synthesis of new series of 5,6-dihydro-4H-1,2-oxazines via hetero Diels-Alder reaction and evaluation of antimicrobial activity*](http://lib.bioinfo.pl/pmid%3A18420309)

 **Eur. J. Med. Chem.**, 44, 280-288, **2008**

1. A. Kumar, S. D’Souza, **S. L. Gaonkar**, K. M. L. Rai and B. P. Salimath. *Growth inhibition and induction of apoptosis in MCF-7 breast cancer cells by a new series of substituted-1,3,4-oxadiazole derivatives,*  **Investigational New Drugs**, 26, 425-435, **2008**
2. C. A. Kumar, S. Nanjunda Swamy, **S. L** **Gaonkar,** Basappa, B. P. Salimath, K. S. Rangappa. ***N-Substituted-2-butyl-5-chloro-3H-imidazole-4-carbaldehyde Derivatives as Anti-tumor Agents Against Ehrlich Ascites tumor Cells In Vivo,* Medicinal Chemistry**, 3, 269-276, **2007**
3. C. V. Kavitha, **S. L. Gaonkar**, J. N. Narendra Sharath Chandra, C.T. Sadashiva and K. S. Rangappa. *Synthesis and screening for acetylcholinesterase inhibitor activity of some novel 2-butyl-1,3-diaza-spiro[4,4]non-1-en-4-ones: Derivatives of irbesartan key intermediate*

 **Bioorg. Med. Chem.,**  15, 7391-7398, **2007**.

1. **S. L. Gaonkar**, K. M. L. Rai and B Prabhuswamy. *Synthesis of novel 3-[5-Ethyl-2-(2-phenoxy-ethyl)-pyridin]-5-substituted-isoxazoline libraries via 1,3-dipolar cycloaddition and evaluation of antimicrobial activities*, **Med. Chem. Res.,** 15, 407-417, **2007.**
2. B. S. Priya, Basappa,S. Nanjunda Swamy, **S. L**. **Gaonkar**, G. Sarala. M. Sridhar. J. S. Prasad and K. S. Rangappa. *Synthesis, characterization, antimicrobial and single crystal X-ray crystallographic studies of some new sulfonyl, 4-chloro phenoxy benzene and dibenzoazepine substituted benzamides,*  **Eur. J. Med. Chem.,** 41, 1262-1270*,* **2006**
3. **S. L. Gaonkar**, K. M. L. Rai and B Prabhuswamy. *Synthesis and antimicrobial studies of a new series of 2-{4-[2-(5-Ethylpyridin-2-yl)ethoxy]phenyl}-5-substituted-1,3,4-oxadiazoles* **Eur. J. Med. Chem.,** 41, 841-846, **2006**
4. E. Aparna, K. M. L. Rai, M. Suresh babu, R. L. Jagadish, **S. L. Gaonkar.** *Synthesis of thioesters and thioamides under solvothermal condition using thiourea as thionating agent,*  **J. Mater. Sci**., 41, 1391-1393, **2006**.
5. S. Nanjunda Swamy, Basappa, G. Sarala, B. S. Priya, **S. L. Gaonkar**, J. Shashidhara Prasad and K. S. Rangappa. *Microwave-assisted synthesis of N-alkylated benzotriazole derivatives: Antimicrobial studies,*  **Bioorg. Med. Chem. Lett.,**16, 999-1004, **2006**.
6. S. Naveen, **S. L. Gaonkar**, Basappa, M. Sridhar, S. Nanjunda Swamy K. S. Rangappa and J. S. Prasad. *Synthesis and crystal structure of 5-Ethyl-2-[2-(4-nitrophenoxy)ethyl]- pyridine,*  **Analytical Sciences**, 22, 263-264, **2006**
7. **S. L. Gaonkar** and K. M. L. Rai. *A new method for the generation of azoalkenes from ketohydrazones and its application to the synthesis of tetrahydropyridazine derivatives*, **Tetrahedron Letters**46, 5969-5970, **2005**
8. H. S. Yathirajan, B. Nagaraj, **S. L. Gaonkar**, R. S. Narasegowda, P. Nagaraja & M. Bolte. *5-Bromo-3H-isobenzofuran-1-one,* ***Acta Cryst*. E**, 61, 345-346, **2005**.
9. **S. L. Gaonkar** and K. M. Lokanatha Rai. *A new method for the generation of α- nitrosoolefins from ketooximes and its application to the synthesis of 5,6-dihydro-4H-1,2-oxazine derivatives,*  **J. Het. Chem***.* 42, 877-881, **2005**
10. W. T. A. Harrison, S. L. Gaonkar, H. G. Anilkumar, H. S. Yathirajan. *5-Bromo-1-(4-fluorophenyl)-1,3-dihydro-isobenzofuran,* **Acta Cryst**. E 62, 1534-1535 **2005**.
11. H. S. Yathirajan, **S. L. Gaonkar,** M. Bolte. *2-(5-ethylpyridin-2-yl)ethanol,*  **Acta Cryst**.E 61, 492-493, **2005**
12. **S. L. Gaonkar**, H. S. Yathirajan, K. M. Lokanatharai, B. Nagaraj, M. Bolte. 4-[2-(5-ethylpyridin-2-yl)ethoxy]benzaldehyde oxime, **Acta Cryst. E**, 61, 751-752, **2005**
13. H. S. Yathirajan, **S. L. Gaonkar**, K. M. Lokanatha Rai & M. Bolte 3-(2-Bromo-4,5-dimethoxybenzyl)thiazolidine-2,4-dione, **Acta Cryst. E**, 61, 655-656, **2005**
14. D. S. Iyengar, K. Jayalakshmi, **S. L. Gaonkar**, M. Sridhar, K. S. Rangappa and J. Shashidhara Prasad. Synthesis and crystal structure of 2-(4-Bromophenyl)-3-(4-methylphenyl)-1,3-thiazolidin-4-one, **Analytical Sciences**, 21, 191-192, **2005**
15. B. Nagaraj, R. S. Narasegowda, H. S. Yathirajan, S. L. Gaonkar, M. Bolte. 5-[4 '-(Bromomethyl)biphenyl-2-yl]-2-trityl-2H-tetrazole, **Acta Cryst**. **E,** 61, 767-768, **2005**
16. H. S. Yathirajan, K. M. L. Rai, **S. L. Gaonkar**, R. S. Narasegowda, B. Prabhuswamy & M. Bolte 3-(p-Nitrobenzyl)-1,3-thiazolidine-2,4-dione, ***Acta Cryst*. E**, 61, 245-246, **2005**
17. **S. L. Gaonkar**, H. S. Yathirajan, B. Nagaraj, R. S. Narasegowda and D. E. Lynch, 2-Butyl-4-chloro-1-(4-nitrobenzyl)-1*H*-imidazole-5-carboxaldehyde, **Acta Cryst**. **E,** 60, 2520-2521, **2004**
18. L. Sieron, B. Nagaraj, B. Prabhuswamy, H. S. Yathirajan, P. Nagaraja, R. S. Narasegowda & **S. L. Gaonkar**. *Trityl losartan*, **Acta Cryst. C,** 60, 821-823, **2004**
19. H. S. Yathirajan, B. Nagaraj**, S. L. Gaonkar**, R. S. Narasegowda, P. Nagaraja & M. Bolte . Mycophenolate mofetil, **Acta Cryst**. **E,** 60, 2223-2224, **2004**.
20. H. S. Yathirajan, B. Nagaraj, **S. L. Gaonkar**, R. S. Narasegowda, P. Nagaraja & M. Bolte, 1-(4-Fluorophenyl)-1,3-dihydroisobenzofuran-5-carbonitrile.

 **Acta Cryst. E**, 60, 2225-2226, **2004**.

1. H. S. [Yathirajan,](http://apps.isiknowledge.com/DaisyOneClickSearch.do?product=WOS&search_mode=DaisyOneClickSearch&db_id=&SID=P2GfLghGFmId5AnjI9H&name=Yathirajan%20HS&ut=000226692400138&pos=1) B. [Nagaraj,](http://apps.isiknowledge.com/DaisyOneClickSearch.do?product=WOS&search_mode=DaisyOneClickSearch&db_id=&SID=P2GfLghGFmId5AnjI9H&name=Nagaraj%20B&ut=000226692400138&pos=2) **S. L. Gaonkar,** R. S. Narasegowda, B. Prabhuswamy, M.Bolte. *5-Amino-3H-isobenzofuran-1-one,*  **Acta Cryst. E**, 60, 2225-2226, **2004**.
2. H. S. Yathirajan, B. Nagaraj, **S. L. Gaonkar**, R. S. Narasegowda, P. Nagaraja, B. Prabhuswamy & M. Bolte. *N-[(2'-Cyanobiphenyl-4-yl)methyl]-L-valine methyl ester hydrochloride: an intermediate in the synthesis of valsartan,* ***Acta Cryst*. E**, 60, 2160-2161, **2004**

**Papers in conferences / seminars participated**

1. BIT’s 1st International Conference of Medichem-2010 *Microwave Assisted Synthesis of Biologically Active Heterocycles* held on 18-20th May **2010** at Beijing, China.
2. 90th annual meeting of The Chemical Society of Japan -2009 *Microwave assisted solution phase synthesis of new series of isoxazoline and isoxazole library via 1,3-dipolar cycloaddition reaction* held on 26-29th March **2010**, at Kinki University, Japan.
3. International Conference on Current Trends in Chemistry and Biochemistry (ICCTCB-2009) *Microwave assisted synthesis of new series of 2-[4-[2-N-methyl-2-pyridylamino)ethoxy]phenyl]-5-substituted-1,3,4-oxadiazoles* held on 18-19 December **2009**, at Bangalore University, Bangalore. The paper has won the consolation prize.
4. International joint symposium of the 1st Hokkaido University-academia Sinica and The 7th symposium for future drug discovery and medical care held on October 7-8, **2009** at Hokkaido University, Sapporo, Japan.
5. 89th annual meeting of The Chemical Society of Japan -2009 held on 27-30th March **2009**, at Nihon University, Japan.
6. National symposium on Bioorganic and Medicinal chemistry (NSBM) - **2005** *Synthesis and antimicrobial studies of a new series of 2-{4-[2-(5-Ethylpyridin-2-yl)ethoxy]phenyl}-5-substituted-1,3,4-oxadiazoles* held at Department of Studies in Chemistry, University of Mysore, Karnataka, India.
7. 6th International Conference on Solvothermal Reactions-**2004** *Synthesis of thioesters and thioamides under solvothermal condition using thiourea as thionating* agent held on 24-27 August 2004, at University of Mysore, India.
8. Emerging Research Trends and Developments in Chemistry (ERTDC) - **2003**  *A new method for the generation of α- nitrosoolefins from ketooximes and its application to the synthesis of 5,6-dihydro-4H-1,2-oxazine derivatives* held at University of Arts and Science College, Kakatiya University, Warangal, Andhra Pradesh, India.
9. **Research Projects (sponsored).. details (nos, brief summary; if many then title, year, amount, sponsoring agency)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name of the project** | **Funding agency** | **Funding amount** | **Principal****Investigator** | **Duration of the Project**  |  **Year** |
| **Microwave technology based drug seed production** | **Japan society of the promotion of sciences (JSPS)** | **30 lakh Yen (Rs. 19 lakh)** | **JSPS post doc grant to SLG** | **2 years**  | **2008-2010** |
| **Exploring the anticancer activity of novel 5- membered heterocycles** | **Manipal Institute of Technology (Post doc research grant)** | **Rs. 5 lakh**  | **S. L. Gaonkar** | **2 years**  | **2012-2014** |

1. **PhD / MTech Students guided/ guiding .details (Nos and title;;; if more than 5 then best 5 only)**

**No. of PhD students: 02**

**No of M.Sc project students guided: 08**

1. **Summary of research accomplishment:**

 **Academic research**

During doctoral studies, I worked mainly on cycloaddition reactions. Synthesis of 1,2-oxazines by hetero D-A reaction by using chloramine-T as catalyst and biological evaluations. Synthesis of pyridazines by hetero D-A reactions. Synthesis of novel 2,5-disubstituted 1,3,4-oxadiazoles via 1,3-dipolar cycloaddition and biological evaluation. Synthesis of novel 2,5-disubstituted isoxazolines via 1,3-dipolar cycloaddition reaction and biological evaluation. Synthesis of tricyclic heterocycles via intramolecular 1,3-dipolar cycloadditions. Synthesis of novel heterocycles and their biological evaluation. Synthesis and single crystal studies of some new heterocycles. During postdoc I have worked on microwave assisted synthesis of new biologically active heterocycles/heterocycles-sugar mimics and new process development for active pharmaceutical ingredients by microwave irradiation. Currently I am working on drug discovery and development.

 **Industrial research**

In industry I have worked on Development of number Active Pharmaceutical Ingredients (API). Some of API’s I have developed are Citalopram, Carbamazepine, Ox-carbazepine, Escitalopram, Losartan, Candesartan, pioglitazone, rosiglitazone, Carprofen, Praziquantel etc. Some of the processes have been patented. Apart from this I have worked on combinatorial chemistry and contract molecules.

 **(Santosh L. Gaonkar)**