

**Name and Designation:**  
**Dr. Sunita Salunke-Gawali**  
**Associate Professor**



**Academic Background:**

Ph.D. ( *Department of Chemistry /University of Pune, 1999*)  
M.Sc. ( *Department of Chemistry/University of Pune, 1993*)  
B.Sc. ( *University of Pune, 1991*)

**Professional Experience:**

1. Postdoctoral research associate at Max-Planck-Institut für Bioorganische Chemie, Stiftstrabe 34-36, Mülheim an der Ruhr, Germany (Dr. Eckhard Bill) (May 2007-April 2008).
2. Post doctoral Research Associate at Universidade do Porto, Portugal ( Prof. Eulália Pereira (Dec. 2004- April 2007).
3. Post doctoral Research Associate at Laboratoire de Magnétisme et d'Optique, CNRS /Université de Versailles (UMR 8634), 45 Avenue des Eatas-Unis 78035 Versailles Cedex, France (Prof. F. Varret) (Sept 2001-Aug 2002).
4. Research Associate at Department of Chemistry, Indian Institute of Technology, Mumbai, India (Prof. C.P. Rao) (Sept 2002-Dec2002).
5. Research Associate at Department of Chemistry, Indian Institute of Technology, Mumbai, India (Prof. C.P. Rao) (Aug 2004-Nov2004).
6. Lecturer in Chemistry at Government of Maharashtra's Ismail Yusuf College of Arts Commerce and Science, Jogeshawari (East) Mumbai, India (Aug 1999- June 2001).
7. Lecturer in Chemistry, at University, Institute of Chemical Technology, Mumbai, India (Aug-2003 – Aug – 2004).
8. Lecturer in Chemistry at Fergusson College Pune-4, Pune, India (Dec 1993- June1995).

### Research Interests:

- Molecular Magnetism
- Coordination Chemistry
- Bioinorganic Chemistry
- Bioorganic Chemistry
- Metallosurfactants
- Dye Sensitized Solar Cells

### Awards and Fellowships:

- Awarded Merit Fellowship By Jindal Educational Trust, Banglore, India 1990-1991.
- Merit listed 22nd rank in all India level M.Sc. entrance jointly conducted by National Chemical Laboratory and University of Pune, India in June 1991 and awarded for the same fellowship in the year 1991-92 and 1992-93.
- UGC-CSIR, research fellowship for PhD degree between 1994-1998.
- Awarded Prof. B.C. Haldar YOUNG SCIENTIST AWARD by Indian Chemical Society at the 32nd Annual Convention of Chemists, University of Rajasthan, and Jaipur, India in 1995.
- Consolation Prize winner for the best presentation by University of Pune, India, at the Golden Jubilee conference 1998.
- Visiting fellowship at Université de Versailles (UMR 8634) ,45 Avenue des Eatas-Unis 78035 Versailles Cedex, France (Prof. F. Varret) Septembre 2001-August 2002.
- Visiting fellowship at Universidade do Porto, Portugal, (Prof. Eulalia Pereira) since December 2004.- April 2007.
- Visiting fellowship at Max-Planck-Institut für Bioanorganische Chemie, Stiftstrabe 34-36, Mülheim an der Ruhr, Germany (Dr. Eckard Bill)May 2007 to April 2008.

### Research Schemes, collaborative ventures and consultancy )

1. “Naphthoquinone containing metal polypyridyl complexes for Solar Cells: Computational and experimental Study”, **ISRO (2013-2015)**.
2. “Design, synthesis, screening and evaluation of reduced forms of amino/imino/thio 1, 4-naphthoquinone derivatives for anti-proliferative properties”, **Department of Biotechnology, Government of India, (2013-2016)**.
3. “Separation and isolation of isomers/tautomers of nitrosonaphthols by HPLC”, **Board of College and University Education, University of Pune (2012-2014)**.
4. “Nanoaggregates of metallosurfactants derived from 4, 4'-dialkylated-2, 2-bipyridine ligands” **BRNS, Department of Atomic Energy, Government of India (2010-2013)**.
5. “Investigations in coordination polymers of live molecules as novel magnetic materials and biocatalyst”, **BCUD (2009-2011)**.
6. “Synthesis of biocatalysts from quinone derived ligands”, **Fast Track Scheme for Young Scientist, DST (2009-2012)**.

## **Collaborations**

### **Dr. Thomas Weyhermüller**

Max-Planck-Institut für Chemische Energiekonversion, Stiftstraße 34-36, 45470, Germany

### **Dr. V. Badireenath Konkimalla**

School of Biological Sciences, National Institute of Science Education and Research (NISER), Bhubaneswar 751005, Orissa, India

### **Dr. Yogesh Patil , Prof. M. Nethaji**

Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore, India

### **Dr. Vedavati G. Puranik/ Dr. Rajesh Gonnade**

Center for Material Characterization, National Chemical Laboratory, Pune 411007, India

### **Dr. H. Pathan**

Department of Physics, University of Pune, Pune 411 007

### **Prof. Shridhar Gejji/ Dr. Milind Nikalje/Dr. Subhash Pingale Dr. Ayesha Khan**

Department of Chemistry, University of Pune, Pune 411 007

## **Publications :41**

**Abstract in International conferences:18**

**Abstract in National conferences: 26**

**International Workshop Attended:5**

**National Workshop Attended:2**

## **Research Students**

### **PhD**

- 1. Laxmi Kathawate**
- 2. Anil Markandeya**
- 3. Yogesh Shinde**
- 4. Dattatray Chadar**
- 5. Gunjan Agarwal**
- 6. Ravi Yadav**
- 7. Rishikesh Patil**
- 8. Sujit Bhand**
- 9. Dinesh Chaudhari**

### **M.Phil**

- 1. Mahesh Jadhav**
- 2. Umesh Kasabe**
- 3. Umar Dhar**

### **Project Fellow**

1. Sujit Bhand
2. Amit Patil

### Research Publications (41)

**41.** Reaction between lawsone and aminophenol derivatives: Synthesis, Characterization, Molecular Structures and Antiproliferative Activity,

Laxmi Kathawate, Pranya V. Joshi, Tapan Kumar Dash, Sanjima Pal, Milind Nikalje, Thomas Weyermüller, Vedavati G. Puranik, V. Badireenath Konkimalla, **Sunita Salunke-Gawali\***  
*J. Mol. Struc.* 1075 (2014) 397-405. DOI: 10.1016/j.molstruc.2014.07.007

**40.** Synthesis and characterization of 2-(*n*-alkylamino)-1,4-naphthoquinone: Molecular structures of ethyl and hexyl derivatives

Rishikesh Patil, Dattatray Chadar, Dinkar Chaudhari, Justin Peter, Milind Nikalje, Thomas Weyhermüller, **Sunita Salunke-Gawali\***  
*J. Mol. Struc.* 1075 (2014) 375-351. DOI: 10.1016/j.molstruc.2014.06.094

**39.** Hydrodistillation and Identification of Novel Compounds from *Celocia argentea* Leaves by GC-MS

Anil Markandeya, Narayan P. Firke, Suneeti S. Gore, **Sunita Salunke-Gawali**, Shirish S. Pingale  
*Research Journal of Pharmacology and Pharmacodynamics; Vol:6 No:2:April-June :2014*

**38.** Synthesis and biological evaluation of 2-chloro-3-(*n*-alkylamino)-1,4 naphthoquinone derivatives as potent antifungal agents”

Omkar Pawar, Ashwini Patekar, Ayesha Khan, Laxmi Kathawate, Santosh Haram, Ganesh Markad, Vedavati Puranik, **Sunita Salunke-Gawali\***  
*J. Mol. Struc.* 1069(2014) 68-74. DOI: 10.1016/j.molstruc.2013.11.029

**37.** Reversed Phase Chromatographic Separation and Isolation of Tautomers of Naphthoquinoneoximes by HPLC: 1. Effect of pH of Mobile Phase on Separation of 3-chloro-2-

hydroxy-4-naphthoquinone-1-oxime

Yogesh Shinde, **Sunita Salunke-Gawali\***

*J. Anal. Chem.* 69 (2014) 1171-1178. DOI: 10.7868/S0044450214120159

**36.** Separation and isolation of tautomers of 2-hydroxy-4-naphthoquinone-1-oxime derivatives by liquid chromatography; Antiproliferative activity and DFT studies

Yogesh Shinde, Stephen Sproules, Laxmi Kathawate, Sanjima Pal, V Badireenath Konkimalla, **Sunita Salunke-Gawali\***

*J. Chem. Sci.* 126(1) (2014) 213–225. DOI: 10.1007/s12039-013-0549-9

**35.** Synthesis, characterization and molecular structures of homologated analogs of 2-bromo-3-(*n*-alkylamino)-1,4-naphthoquinone

**Sunita Salunke-Gawali\***, Omkar Pawar, Milind Nikalje, Rishikesh Patil, Thomas Weyhermüller, Vedavati G. Puranik, V. Badireenath Konkimalla

*J. Mol. Structure*, 1056-1057(2014) 97-103. DOI: 10.1016/j.molstruc.2013.10.016

**34.** Thermal and spectral properties alkali metal complexes of 2-hydroxy-1,4-naphthoquinone

Laxmi Kathawate, Yogesh Shinde, Ravi Yadav, Umesh Kasabe, Milind Nikalje, **Sunita Salunke-Gawali\***

*J. Therm. Anal. Calorim.* 115(3) (2014) 2319-2330.

**33.** Quantitative elemental analysis of *Celocia argentea* leaves by ICP-OES technique using various digestion methods

Anil G. Markandeya, Narayan P. Firke, Shirish S. Pingale, **Sunita Salunke-Gawali\***

*International Journal of Chemical and Analytical Science*, 4 (2013) 175-181.

DOI:10.1016/j.ijcas.2013.08.003

**32.** Molecular structures and antiproliferative activity of side-chain saturated and homologated analogs of 2-chloro-3-(*n*-alkylamino)-1,4-naphthoquinone

Sanjima Pal, Mahesh Jadhav, Thomas Weyhermüller, Yogesh Patil, M. Nethaji, Umesh Kasabe, Laxmi Kathawate, V. Badireenath Konkimalla, **Sunita Salunke-Gawali\***

*J. Mol. Struct.* 1049 (2013) 355-361. DOI: 10.1016/j.molstruc.2013.06.062

**31.** Synthesis and Molecular Structure of a Zinc complex of the Vitamin K<sub>3</sub> Analogue Phthiocol  
Laxmi Kathawate, Stephen Sproules, Omkar Pawar, Ganesh Markad, Santosh Haram, Vedavati  
Puranik, **Sunita Salunke-Gawali\***

*J. Mol. Structure*, 1048 (2013) 223-229. DOI: 10.1016/j.molstruc.2013.05.057

**30.** Lawsone Sensitized ZnO Photoelectrodes for Dye Sensitized Solar Cells

S. S. Khadtare, S. R. Jadkar, **S. Salunke-Gawali**, H. M. Pathan,

*Journal of Nanoresearch* 24 (2013) 140-145.

**29.** THERMAL, MAGNETIC AND SPECTRAL PROPERTIES OF METAL QUINONE  
COMPLEXES Part IV Alkali metal complexes of 3-chloro-2-hydroxy-1,4-naphthoquinone:  
Synthesis characterization and Thermal studies,

Laxmi Kathawate, Yogesh Shinde, Ravi Yadav, **Sunita Salunke-Gawali\***

*J. Therm. Anal. Calorim.* 111(2013)1003–1011.

**28.** Determination of Potential Genotoxic Impurities in *Imatinib* Mesylate by RP-HPLC Method

R. R. Yadav, M. D. Rokade, **S.A. Salunke**, D. M. Gangrade, G. S. Holkar and V. N. Daphal,

*Biological Forum –An International Journal*, 4(2) (2012), 15-18

**27.** MOF with hydroxynaphthoquinone as organic linker: Molecular structure of  
[Zn(Chlorolawsone)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>] and thermogravimetric studies

**Sunita Salunke-Gawali\***, Laxmi Kathawate, Vedavati G. Puranik

*J. Mol. Struct.* 1022 (2012) 189-196. DOI: 10.1016/j.molstruc.2012.05.012

**26.** Recent developments in research of *Celocia argentea*: A review

Anil G. Markandeya, Narayan P. Firke, **Sunita Salunke-Gawali**, Shirish S. Pingale

*Journal of Pharmacy Research*, 5(2) (2012) 1076-1082.

**25.** Single crystal X-ray structure of Lawsone anion: Evidence for coordination of alkali metal  
ions and formation of naphthosemiquinone radical in basic media.

**Sunita Salunke-Gawali\***, Laxmi Kathawate, Yogesh Shinde, Vedavati G. Puranik, Thomas  
Weyhermüller,

*J. Mol. Structure*, [1010](#) (2012) 38–45. DOI: 10.1016/j.molstruc.2011.11.015

**24. Toxicity Studies for Celocia Argentea leaves**

Shirish Pingale, Anil Markandeya, **Sunita Gawali**

*International Research Journal of Pharmacy*, 2 (2011) 263-266.

**23. Metal-Complexes As Ligands To Generate Asymmetric Homo- and Heterodinuclear MAIIMBII Species: A Magneto-Structural and Spectroscopic Comparison of Imidazole-N Versus Pyridine-N.**

Biplab Biswas, **Sunita Salunke-Gawali**, Thomas Weyhermüller, Vinzenz Bachler, Eckhard Bill and Phalguni Chaudhuri

*Inorg. Chem.* 49 (2) (2010) 626–641. DOI: 10.1021/ic9018426

**22. Vitamin K<sub>3</sub> family members - Part II: Single crystal X-ray structures, temperature-induced packing polymorphism, magneto-structural correlations and probable anti-oncogenic candidature**

Sandhya Rane, Khursheed Ahmed, **Sunita Salunke-Gawali**, Santosh B. Zaware, D. Srinivas, Rajesh Gonnade and Mohan Bhadbhade

*J. Mol. Struct.* 892 (2008)74-83. DOI: 10.1016/j.molstruc.2008.05.015

**21. Dimeric Fe (II, III) complex of quinoneoxime as functional model of PAP enzyme: Mössbauer, magneto-structural and DNA cleavage studies**

**Sunita Salunke-Gawali**, Khursheed Ahmed., Jorge Linares, Santosh Zaware, Sadgopal Date and Sandhya Rane

*Hyperfine Interact* 185(2008) 47-56.

**20. A Ferromagnetically coupled Diiron(III)Complex with a m-Phenylenediamine Based Ligand**

Biplab Biswas, **Sunita Salunke-Gawali**, Thomas Weyhermuller, Vinzenz Bachler, Eckhard Bill and Phalguni Chaudhuri,

*Eur. J. Inorg. Chem.* (15/2008) 2391-2395.

**19. Mössbauer Effect Studies on the Crystallization Behavior of Ultra-Fine Iron Oxide Phases Synthesized via Microwave-Hydrothermal Route**

P.P. Bakare, S. K. Date, Y. B. Kholam, S. B. Deshpande, H. S. Potdar, **Sunita Salunke-Gawali**,

F. Varret, E. Pereira

*Hyperfine Interaction* 168 (2006) 1127 – 1132.

**18.** Mono- and di-nuclear Cu(II) complexes of *p-tert*-butyl-calix[4]arene-1,3-diacid derivative: A comparative study of their characterization and catecholase mimetic activity.

Amjad Ali, **Sunita Salunke-Gawali**, Chebrolu P. Rao' and Jorge Linares

*Ind. J. Chem.* 45A (2006) 853-857.

**17.** Temperature effect on ancillary  $\mu$ -carbonato ligand modes in hydroxy naphthoquinonato copper(II) complex: An EPR spectroscopic and magnetic coupling evidences.

**Sunita Gawali-Salunke**, Sandhya Rane, Khursheed Ah.,

*Synthesis and reactivity metal - organic chemistry* 36 (2006) 391-398.

**16.** SOM assembly of hydroxynaphthoquinone and its oxime: Part- I Polymorphic X-ray structures and EPR studies

A. V. Todkary, R. Dalvi, **S. Salunke -Gawali** , J. Linares, J. Marrot, F. Varret, J. V. Yakhmi, M. Bhadbhade, D. Srinivas, S. P. Gejji and S. Y. Rane

*Spectrochimica Acta A*, 63/1 (2006) 130-138. DOI: 10.1016/j.saa.2005.04.054

**15.** Ligand induced stereoisomers revealed in Copper(II) complex of nitrolawsone oxime: EPR & electronic spectral studies

Rane S.Y., Khan E. M., Khursheed Ah, **Salunke-Gawali S.**

*Synthesis and reactivity metal - organic chemistry* 35 (2005) 343-353.

**14.** Magnetic and Mössbauer investigation of photomagnetic Prussian Blue analogue  $\text{Na}_{0.45}\text{Co}[\text{Fe}(\text{CN})_6]_{0.79} \cdot 3.4\text{H}_2\text{O}$ : relaxation of the thermally quenched state, dehydration effect on the thermal hysteresis loop.

**S. Gawali-Salunke**, I. Maurin, K. Boukheddaden, E. Codjovi, K. Hashimoto, H. Tokoro, S. Ohkoshi, F. Varret

*The Journal of Physical Chemistry B* 109 (16)(2005)8251-8256. DOI: 10.1021/jp044739x

**13.** THERMAL, MAGNETIC AND SPECTRAL STUDIES OF METAL-QUINONE COMPLEXES: Part III. Radical coordination and hydrogen bonding mediated exchange



interaction in copper-hydroxyquinone complex.

**S. Salunke-Gawali**, S. Y. Rane, K. Boukheddaden, E. Codjovi, J. Linares, F. Varret, P. P. Bakare  
*Journal of Thermal Analysis and Calorimetry*, 79 (2005) 669-675.

**12.** A First report of the complexes of 5, 11, 17, 23-tetra-*tert*-butyl-25, 27-diethoxycarbonylmethoxy-26, 28-dihydroxycalix [4] arene with Mn(II), Fe(III), Co(II), Ni(II), Cu(II) and Zn(II)

Amjad Ali, **Sunita Salunke-Gawali**, Chebrolu P. Rao and Jorge Linares

*Inorganic Chemistry Communication*, 7 (2004) 1298-1301. DOI: 10.1016/j.inoche.2004.10.012

**11.** Non-exponential relaxation of the metastable state of the spin crossover system [Fe(L)<sub>2</sub>](ClO<sub>4</sub>)<sub>2</sub> · H<sub>2</sub>O, with L = C<sub>13</sub>H<sub>24</sub>N<sub>5</sub>: a possible consequence of the conformational disorder of the ligand

C. Enachescu, J. Linares, F. Varret, K. Boukheddaden, E. Codjovi, I. Maurin, **S Salunke-Gawali**, and R. Mukherjee

*Inorganic Chemistry*, 43 (2004) 4880-4888. DOI: 10.1021/ic049938+

**10.** Three Dimensional Hydrogen-bonding Networks in a Copper Complex of 2-Hydroxy-1, 4-naphthoquinone: Structure, Spectroscopy and Magnetic Properties

**S. Salunke-Gawali**, P. S. Y. Rane, V. G. Puranik, C. Guyard-Duhayon, F. Varret.

*Polyhedron*, 23(2004) 2541-2547. DOI: 10.1016/j.poly.2004.08.022

**9.** Thermal, Magnetic and Electrochemical Properties of Polymeric Copper Complexes of 2-hydroxy-1, 4-naphthoquinone and its Methyl Derivative

**S. Salunke-Gawali**, S. Y. Rane, K. Boukheddaden, E. Codjovi, J. Linares, F. Varret, P. P. Bakare

*Indian. J. Chemistry* 43A (2004) 2563-2567.

**8.** THERMAL STUDIES OF METAL-QUINONE COMPLEXES 2. Media effect on coligation of Aqua ligands with 3-methyl-2-hydroxy-1, 4-naphthoquinone

**S. Salunke-Gawali**, S. Rane, R. Dalvi, K. Ahmed

*Journal of Thermal Analysis and Calorimetry*, 76 (2004) 801-812.

7. The Ising-like model applied to Switchable Inorganic Solids: discussion of the static properties

F. Varret, **S.A. Salunke**, K.Boukheddaden, A. Bousseksou, E. Codjovi, C. Enachescu, J. Linares,

*Comptes Rendus Chimie* 6(3), (2003), 385-393. DOI: 10.1016/S1631-0748(03)00048-1

6. Theoretical and experimental investigations on the structure and vibrational spectra of 2-hydroxy-3-methyl-1,4-naphthoquinone-1-oxime

D. R. Thube, A. Todkary, S. Y. Rane, K. Joshi, S. P. Geji, **S. A. Salunke**, F. Varret, J. Marrot, *Journal of Molecular Structure (Theochem)*, 622 (2003) 211-219.

DOI: 10.1016/S0166-1280(02)00646-2

5. A Novel magnetic exchange mechanism in bridged copper (II) coordinations of naturally occurring spin carriers viz. ortho-functionalized p-naphthoquinones.

S.Y. Rane, **S.D Gawali**, S. B. Padhye, S. K. Date, P. P. Bakare

*Ind. J. Chemistry*, 42A (2003) 255-261.

4. The spin transition of an iron (III) complex intercalated in a MnPS<sub>3</sub> layered magnet. Hysteresis effect revealed by the removal of the lattice solvent.

S. Floquet, **S. Salunke**, M-L Boillot, R. Clément, F. Varret, K.Boukheddaden, E. Rivière

*Chem. Mater.*, 14(2002) 4164-4171.

3. Non- Linear Relaxation of the photo-induced high spin state in spin crossover solids: Effect of correlations

K. Boukheddaden, F. Varret, **S. Salunke**, J. Linares, E. Codjovi,

*Phase Transitions*, 75, no.7-8(2002) 733-741.

2. Thermal studies of metal quinone complexes: Role of aqua colligation with copper (II) in coordination of 2-hydroxy-1, 4-naphthoquinone,

S. Y. Rane, **Sunita D Gawali**, S. B. Padhye, A.S. Kumbhar, P. P. Bakare

*Journal of Thermal Analysis and Calorimetry*, 55(1999) 249-258.

1. Quintet-Triplet magnetic phase transition in dinucleating lawsone Magneto structural evidence involving array of copper centers.

S. Y. Rane, **Sunita D Gawali**, S. B. Padhye, A.S. Kumbhar, V.G. Puranik, P. P. Bakare S. K.  
Date,

*Proc. Indian. Acad. Sci. (Chem .Sci.)* 108 (3) (1996) 289.

**Patents:**

**NIL**