



Dr. Shilpee Sachar

Contact

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Educational Qualifications

B.Sc. (Chemistry Honours)	2000	1 st Div.	Kurukshetra University, Kurukshetra, India
M.Sc. (Chemistry Honours)	2002	1 st Div.	Panjab University, Chandigarh, India
Ph.D. (Chemistry)	2009	-	Panjab University, Chandigarh, India
Title of the thesis:	“Molecular complexation of Drugs with Cyclodextrins and Biological Surfactants: A Thermodynamic and Spectroscopic study”		
Place of Research work:	Departement of Chemistry, Panjab University, Chandigarh		

Positions held

June 2011- August 2013	“ Assistant Professor ” School of Science, Narsee Monjee Institute of Management Studies, Mumbai, India
August 2013 to date	“ Assistant Professor ”, Department of Chemistry, University of Mumbai, Santacruz (E), Mumbai- 400 098, India

Awards and Honors

2012	2nd prize for the Research Project Presentation entitled, “Novel Nanomaterials for Stem Cell Tracking”, at the ‘Research Colloquium’ organized at NMIMS University.
2006	“ Award for Best Poster ” titled “Micellar behavior of dodecyldimethylethylammonium bromide and dodecyltrimethylammonium chloride in aqueous media in the presence of Diclofenac Sodium” in International Conference on Structure & Dynamics: From Micro to Macro at University of Culcatta, Kolkata.

- 2005 Awarded with CSIR SRF (open) fellowship
- 2000 First Rank in BSc. at Kurukshetra University.

Research Interest

- Solubility and stability properties of therapeutic drugs in the pre-formulation stage by complexing with different surface active agents.
- Surface modifications of nanoparticles.
- Colloidal Chemistry and its applications in nanotechnology and bio-medical field.

Membership of Professional Societies

1. Life Member of CRSI (Chemical Research Society of India)
2. Life Member of ICS (Indian Chemical Society)
3. Life Member of ISCA (The Indian Science Congress Association)

Publications

1. “Green chemistry mediated synthesis of PLGA-Silver nanocomposites for antibacterial synergy: Introspection of formulation parameters on structural and bactericidal aspects” Ankush Parmar, Gurpreet Kaura, Shikha Kapil, Vipasha Sharma, Shilpee Sachar, Rajat Sandhir, Shweta Sharma, *Reactive and Functional Polymers*, 2019, 141, 68–81
2. “Insights into the Interactions of Sulfamethoxazole with Organized Assemblies of Ionic and Nonionic Surfactants.” Aparna Saraf, Shweta Sharma, Shilpee Sachar; *Langmuir*, 2018, 3448, 14624-14632.
3. “Understanding Toxicity of nanomaterials in the environment: Crucial tread for controlling the production, processing and assessing the risk.” Shweta Sharma, Surinder Kumar Mehta, Ankush Parmar, Shilpee Sachar, *Nanomaterials in Chromatography: Current Trends in Chromatographic Research Technology and Techniques* 2018, Pages 467–500. **(Book Chapter)**
4. “Synthesis of bare and surface modified TiO₂ nanoparticles via single source precursor and insights into their interactions with Serum Albumin”, A. Ansari, S. Sachar and S. S. Garje, *New Journal of Chemistry*, 2018, 42, 13358.
5. “Surface dynamics associated with zinc oxide nanoparticles and biomolecules in presence of surfactants”, Shruti G. Bhatkalkar, Dinesh Kumar, Ahmad Ali, Shilpee Sachar, *Journal of Molecular Liquids* 268 (2018) 1–10
6. “Mechanistic insights into the interactions of magnetic nanoparticles with bovine serum albumin in presence of surfactants” Delina Joseph, Shilpee Sachar, Nand Kishore, Sudeshna Chandra, *Colloids and Surfaces B: Biointerfaces* (2015), 135, 596–603.
7. “Synthesis and characterization of arsenic trioxide nanoparticles and their in vitro cytotoxicity studies on mouse fibroblast and prostate cancer cell lines”, Vaibhav Jadhav, Shilpee Sachar, Sudeshna Chandra, D. Bahadur, Purvi Bhatt, *Journal of Nanoscience and Nanotechnology* (2015), 15, 1-7.

8. "Cellular Internalization and Detailed Toxicity Analysis of Protein Immobilized Iron Oxide Nanoparticles" Purva Sanganeria, Shilpee Sachar, Sudeshna Chandra, Dharendra Bahadur, Pritha Ray and Aparna Khanna, *Journal of Biomedical Materials Research: Part B - Applied Biomaterials*, (2015), 103, 1, 125–134.
9. "Energetically favorable interactions between Diclofenac Sodium and Cyclodextrin molecules in aqueous media" S.K.Mehta, K.K.Bhasin, Shilpee Dham, *J. Colloid Interface Sci.*, (2008), 326, 374-381.
10. "Interactions between Quaternary ammonium compounds and cyclodextrins in aqueous media" S.K.Mehta, K.K.Bhasin, Shilpee Dham and M.L.Singla, *J. Colloid Interface Sci.*, (2008), 321, 442-451.
11. "Micellar behavior of dodecyldimethylethyl ammonium bromide and dodecyltrimethyl ammonium chloride in aqueous media in the presence of Diclofenac Sodium" S.K.Mehta, K.K.Bhasin, Anil Kumar and Shilpee Dham, *Colloids and Surfaces A: Physicochem. Eng. Aspects* (2006), 278, 17-25.
12. "Effect of temperature on critical micelle concentration and thermodynamic behavior of dodecyldimethylethylammonium bromide and dodecyltrimethylammonium chloride in aqueous media", S.K. Mehta., K.K. Bhasin, Renu Chauhan, Shilpee Dham, *Colloids and Surfaces A: Physicochem. Eng. Aspects* (2005), 255, 153–157.
13. Behavior of rifampicin in association with β -cyclodextrin in aqueous media: a spectroscopic and conductometric study, S. K. Mehta, K. K. Bhasin, Neena Mehta, **Shilpee Dham**, *Colloid Polym Sci*, 283, 532–538, 2005.

Contributions in symposia, conferences and reports

1. Participated and presented poster in International Conference on Structure & Dynamics: From Micro to Macro at Kolkata from Dec., 2006 University of Culcatta, Kolkata. The poster received the **Best Poster award**.
2. Participated and presented poster in The 59th Divisional Meeting on Colloid and Interface Chemistry, the Chemical Society of Japan:International symposium, Hokkaido University, N17W6, Kita-ku, Sapporo, Hokkaido, 001-0017, Japan, September 2006.
3. Participated and presented poster in Prof. Ram Chand Paul Ist National Annual Symposium & 15th one day Annual National Symposium in Department of Chemistry, Panjab University, Chandigarh, Feb 2005
4. Participated and presented poster in Prof. Ram Chand Paul 2nd National Annual Symposium & 16th one day Annual National Symposium in Department of Chemistry, Panjab University, Chandigarh. The poster received the **best poster award**.
5. Participated and presented poster in 91st Session Of Indian Science Congress Association, Chandigarh, 2004.
6. Participated and presented poster in National Symposium on Industrial Applications of Microemulsion Technology, New Delhi, 2004.
7. Insight into Magnetic Nanoparticles interaction with coating materials, Delina Joseph and Shilpee Sachar, National Symposium on Multidisciplinary Research in Biomedical and Applied Sciences, School of Science, NMIMS, Vile Parle, Mumbai, 11th – 12th November 2013.

8. Probing the interactions at magnetic nanoparticles interface with serum proteins, Delina Joseph and Shilpee Sachar, 16th CRSI National Symposium in Chemistry (NSC), Chemical Research Society of India (CRSI) and IIT-B, IIT Bombay, Powai, Mumbai, 7th – 10th February, 2014. P 454
9. Insights into the interactions of Magnetic Nanoparticles with Serum Proteins, Delina Joseph and Shilpee Sachar, National Conference on advances and innovations in Chemical Sciences (NCAICS -2015), Department of Chemistry, Mumbai University, 12th – 13th February 2015. OP
10. Solubility enhancement and release studies of Sulfamethoxazole via micellar and nanoparticle based formulations, Aparna Saraf, Omkar Padave, Indu Mishra and Shilpee Sachar, National Conference on Recent Developments in Chemical Sciences (RDACS-2018), Department of Chemistry, Mumbai University, 8th, 9th March 2018. OP
11. Interactions of copper oxide nanoparticles with serum proteins in presence of surfactants, Shruti G. Bhatkalkar, Priyanka Bavdane, Uttam Walvi and Shilpee Sachar, National Conference on Recent Developments in Chemical Sciences (RDACS-2018), Department of Chemistry, Mumbai University, 8th, 9th March 2018. PP 89

Other conferences/symposia/winter school/workshop attended

1. 102nd Indian Science Congress, Science & Technology for Human Development (ISC-2015) University of Mumbai, Mumbai, India, 3–7 January 2015
2. UGC-SAP sponsored International conference “New Horizons in Synthetic and Materials Chemistry” Department of Chemistry, University of Mumbai, 26th-28th November 2015

Invited lectures delivered at various universities and research institutes

1. Introduction to Nanoscience and Nanotechnology
Refresher course in Chemistry, Academic Staff College and Department of Chemistry, University of Mumbai, 13th Nov. 2013
2. Nanotechnology and Applications
Invited talk for the students of Certificate Course in Molecular Medicine, School of Science, NMIMS University, Vile Parle, January 4 & 11, 2014
3. Surface Thermodynamics: An Important Measure for Biomedical Applications
State level Seminar-“Advances in Colloid Chemistry”, Parvatibai Chowgule College of Arts and Science, Department of Chemistry, Gogol Margao Goa, 15th February 2015
4. Effective Surface modifications of Nanostructures
Refresher course on Advances in Materials Chemistry and Technology (AMCT), Academic Staff College and Department of Chemistry, University of Mumbai, 13th November 2017.
5. Effective Surface modifications of Nanostructures
Invited talk at International conference on Asian Network for Natural & Unnatural Materials (ANNUM-VII), Department of Chemistry, Gujrat University, Ahmedabad, 27th -

29th September 2019.

6. Surfactants and Nanoparticles: Potential Loading Substrate for Antibiotics

At Indo-UK workshop on Green Chemistry for Societal Needs: Healthcare, Pollution and Circular Economies, under the Researcher Links scheme offered within the Newton Bhabha Fund, the British Council, the University of York and the University of Delhi, 16th-18th December, 2019 at New Delhi.

7. Surface Designing of Nanomaterials for Biomedical Applications

Invited talk at 107th Indian Science Congress, University of Agricultural Sciences Bangalore, 3rd-7th January, 2020.

PhD Students

Currently 5 PhD students are working

Research Grants

Co-Investigator in the project “**Synthesis and Characterization of novel nanoparticles and study of their interactions with stem cells**”, DST Nanomission (2013-2016); Sanctioned amount ~Rs 45 lakhs. Other investigators in the project are Dr. Aparna Khanna, Dean, school of Science, NMIMS, Dr. Dharendra Bahadur, Department of Metallurgical Engineering and Material Science, Indian Institute of Technology Bombay, Mumbai, Dr. Pritha Ray, Principal Investigator, Advanced Centre for Training, Research and Education in Cancer, Kharghar, Navi Mumbai.
