

# Curriculum Vitae

## DR. SUNITA SINGH



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**Educational Qualification** : **M. Sc. Biochemistry (1988)**  
Department of Biochemistry  
University of Allahabad, Allahabad (UP)

**Ph.D Biomedical Biochemistry (1993)**  
Department of Biochemistry  
S.N. Medical College  
Dr. B.R. Ambedkar University, Agra (UP)

Ph. D. in the supervision of **Dr. M.C Pant, Professor & Head, Department of Biochemistry, S.N. Medical College, Agra**, topic entitled “*Effect of administration of whole, defatted and oil of Prunus amygdalus seeds on blood sugar and lipid profile in albino rabbits*”.

**PGDB (Post graduate Diploma in Bioinformatics; 2011)** from **Directorate of Open & Distance Learning (DODL), Jamia Hamdard University, Hamdard Nagar, New Delhi.**

**Teaching Experience: 9 Yrs**

**Research Experience: 8 Yrs**

## List of Research Publications

*Papers published in International Journals*

1. Darshan Malik, **Sunita Singh**, Amarjeet Kaur, Jayita Thakur, Shashi Nijhawan (2014) Oxidative Burst: Biochemical implications of metal toxicity, *Journal of Biotechnology and Crop Sciences*, Vol. 6(1) 25-40.
2. Darshan Malik, **Sunita Singh**, Raj Kishore Singh, Amarjeet Kaur, Jayita Thakur, Shashi Nijhawan (2014) Heavy Metal Pollution in Yamuna River: An Introspection, *International Journal of Current Microbiology and Applied Science* Vol 3(10): 856-863.
3. **Sunita Singh**, Darshan Malik, Jayita Thakur, Amarjeet Kaur, Raj Kishore Singh and, Shashi Nijhawan (2014) A Comparative Analysis of the Physico-chemical Properties and Heavy Metal Pollution In Three Major Rivers Across India, *International Journal of Science and Research* Vol. 3(8):1936-1941.

4. Malik D, **Singh S**, Thakur J, Kishore R, Kapur A, Nijhawan S (2014) Microbial Fuel Cell: Harnessing Bioenergy from Yamuna Water, *International Journal of Science and Research* Vol. 3 (6): 1076-1081.
5. Darshan Malik, **Sunita Singh**, Jayita Thakur, Raj Kishore Singh, Anita Kapur, Amarjeet Kaur, Shashi Nijhawan and Anil Kumar (2014) Nanocomposite Electrode Microbial Fuel Cell: A Promising Technology for Enhanced Power Generation from Yamuna Water, *International Journal of Science and Research* Vol. 3(7): 641-646.
6. Singh Man, Kale R.K. and **Singh Sunita** (2011) New Materials for Biosensor Construction In: *Environmental Biosensors*, Intech Open Access Publishers Chapter 6, pp 147-170 2011.
7. Mondal K., Jain S., **Teotia S.** and Gupta M.N. (2006) Emerging options in bioseparations, *Biotechnology Annual Reviews* 12, 1-30.
8. **Teotia S.**, Mondal K. and Gupta M.N. (2006) Integration of affinity precipitation with partitioning methods for bioseparation of chitin binding lectins, *Food & Bioprocess Processing* 84 (C1), 37-43.
9. Jain S., Teotia S. and Gupta M.N. (2004) Purification of green fluorescent protein over expressed by a mutant recombinant *E. coli* , *Protein Expression and Purification* 36, 76-81.
10. **Teotia S.** and Gupta M.N. (2004) Chitosan as a macroaffinity ligand: Purification of chitinases by affinity precipitation and aqueous two phase, *Journal of Chromatography A* 1052, 85-91.
11. Roy I., Jain S., **Teotia S.** and Gupta M.N. (2004) Evaluation of microbeads of calcium alginate as a fluidized bed medium for affinity chromatography of *A. niger* pectinase, *Biotechnology Progress* 20, 1490-1495.
12. **Teotia S.** and Gupta M. N. (2004) Purification of phospholipase D by two-phase affinity extraction, *Journal of Chromatography A* 1025, 297-301.
13. Sharma S., **Teotia S.** and Gupta M. N. (2003) Bioconversion in an aqueous two phase system using a smart biocatalyst: Casein hydrolysis by alpha chymotrypsin, *Enzyme and Microbial Technology* 32(2), 337-339.
14. **Teotia S.**, Sharma S. and Gupta M. N. (2003) Casein hydrolysis in PEG-salt two phase system by Eudragit - chymotrypsin bioconjugate, *Biotechnology Letters* 25, 637-639.
15. **Teotia S.** and Gupta M. N. (2002) Magnetite-alginate beads for purification of some starch-degrading enzymes, *Molecular Biotechnology* 20(3), 231-237.
16. **Teotia S.**, Lata, R., Khare S.K. and Gupta M. N. (2001) One step purification of glucoamylase by affinity precipitation with alginate, *Journal of Molecular Recognition* 14(5), 295-299.
17. **Teotia S.** and Gupta M. N. (2001) Purification of  $\alpha$ -amylase using magnetic alginate beads, *Applied Biochemistry and Biotechnology* 90(3), 211-220.

18. **Teotia S.**, Khare S.K. and Gupta M. N. (2001) An efficient purification process for sweet potato  $\alpha$ -amylase by affinity precipitation with alginate, *Enzyme and Microbial Technology* 28(9-10), 792-795.
19. **Teotia S.** and Gupta M. N. (2001) Free polymeric bioligands in aqueous two phase affinity extractions of microbial xylanases and pullulanase, *Protein Expression and Purification* 22, 484-488.
20. **Teotia S.** and Gupta M. N. (2001) Reversibly soluble macroaffinity ligand in aqueous two phase separation of enzymes *Journal of Chromatography A* 923 (1-2), 275-280.

### **Papers published in National Journals**

21. Singh M., Prakash J. and **Teotia S.** (1998) Apparent molar volumes and viscosities and surface tensions measurements of  $\text{NH}_4\text{Cl}$  and glycine in glycerol water at 292.25 K, *Ultra Science* 10(2), 226-231.
22. Singh M., **Teotia S.** and Ram B. (1998) Viscosities ( $\eta$ ) of polyvinyl pyrrolidone in its aqueous solutions at 292.9 K, *Asian Journal of Chemistry* 10(3), 518-521.
23. **Teotia S.** and Singh M. (1997) Hypoglycemic effect of *Prunus amygdalus* seeds on albino rabbit, *Indian Journal of Experimental Biology* 35, 295-296.
24. **Teotia S.**, Singh M. and Pant M.C. (1997) Effect of *Prunus amygdalus* seeds on lipid profile, *Indian Journal of Physiology and Pharmacology* 41(4), 383-389.

### **Other Publications in National and International Journals**

1. Darshan Malik, Promita Thakur, **Sunita Singh**, Jayita Thakur and Shashi Nijhawan. (2014) Defining Fashion: Examining Evolving Trends from a Socio- Historical Perspective, *Journal of International Academic Research for Multidisciplinary*, Vol.2 (11), 188-193.
2. Jayita Thakur, Darshan Malik, Shashi Nijhawan and **Sunita Singh** (2014) Situating Women in modern Science: The India Scenario, *Journal of International Academic Research for Multidisciplinary*, Vol. 2 (7), 52-59.
3. **Sunita Singh**, Jayita Thakur, Darshan Malik, Parul Malik and Shashi Nijhawan Identity Negotiation: The Prospective of Indian Women (2014) *Journal of International Academic Research for Multidisciplinary*, Vol. 2 (7): 439-447.

### **Research interests**

Nanobiocatalysts and their applications; Chemical modification and chemical crosslinking of proteins; Production and separation of proteins/enzymes; Enzyme stability and stabilization; Industrial applications of enzymes.

### **Participation in Conferences/poster presentations**

1. **Neurodegenerative Disorder: Molecular mechanism of Alzheimer's Understanding the mechanism and challenges of complex diseases (UMCCD-2014)**, 29th-30th December.
2. A three day **Workshop for Laboratory Assistants and Attendants in Chemical and Life Sciences** organized by SHIVAJI COLLEGE, DU from July 16-18, 2014.

3. **International Conference on Life Sciences, Informatics, Food and environment**, Jaypee Institute of Information & Technology, Noida for the research paper titled” Microbial Fuel Cell:harnessing green energy from Yamuna water” 2014.
4. Participated in **First International Conference on Empowerment of Women in the Developing World** organized by Women Development Cell, Shivaji college, University of Delhi in collaboration with WSDC, University of Delhi and **NIDM, Ministry of Home Affairs, Govt. of India** from April 01-02, 2013.
5. **International Conference on Emerging Trends in Chemical Sciences (ICETCS 2013)** at School of Chemical Sciences, Central University of Gujarat (CUG), Gandhinagar, Gujarat from March 14-15, 2013.
6. Bio WORLD 2012: **Proteins in Diseases and Disorders** organized by **Kusuma School of Biological Sciences, Indian Institute of Technology Delhi**, New Delhi from Dec. 10 -12, 2012.
7. National Conference on **New Trends in Bioinformatics** organized by Supercomputing Facility for Bioinformatics & Computational Biology, IIT Delhi & Kusuma School of Biological Sciences from July 30-31, 2012.
8. International Symposium on **Recent Advances in “Green Chemistry” and “Chromatography Sciences”** organized by Indian Society of Analytical Scientists (Delhi Chapter) at **Manav Rachna International University**, Faridabad (Haryana) from *January 12-14, 2012*.
9. **NATIONAL NMR WORKSHOP** on “Hands-on NMR 500 MHz: Understanding and Applications” organized by **School of Chemical Sciences, Central University of Gujarat (CUG)**, Gandhinagar-382030, Gujarat on January 09, 2012.
10. **International Conference on Green and Sustainable Chemistry** organized by Singapore National Institute of Chemistry, Singapore from August 3-5, 2009.
11. Attended **81<sup>st</sup> Colloid & Surface Science Symposium, American Chemical Society (ACS)**, organized by Department of Chemical Engineering, **University of Delaware, Newark, US** from June 24-27, 2007.
12. Attended a short term course on “**Directed Self- Assembly of Colloids**”, held in conjunction with **the 81<sup>st</sup> Colloid & Surface Science Symposium, American Chemical Society (ACS)** organized by Department of Chemical Engineering, **University of Delaware, Newark, US** on June 28, 2007.
13. Attended **5<sup>th</sup> International Conference on Bioinformatics & Biotechnology InCoB2006** organized by IITD, DBT, JNU at The Ashok, New Delhi from Dec. 18-20, 2006.
14. Participated in National Symposium on ‘**Emerging Trends in Biotechnology**’ organized by Department of Biochemistry, Deshbandhu College, University of Delhi, Kalkaji from Nov. 16-17, 2006.
15. Covalent immobilization of horseradish peroxidase on nickel oxide nanoparticles **Teotia, S., Ahmad, T., Ganguli, A.K. and Gupta, M.N.** In: **International conference on nanscience & technology**, India Habitat Centre, New Delhi, March 16-18, 2006.

16. Attended Symposium on '**Systems Biology**' organized by **Centre for Computational Biology & Bioinformatics (CCBB)**, JNU & Distributed Information Sub-centre UDSC from March 12-13, 2006.
17. Attended group monitoring workshop of **DST's SERC FAST TRACK SCHEME** at Department of Zoology, University of Jammu, J & K from Feb. 3 –5, 2005.
18. Purification of recombinant green fluorescent protein; Jain S., Teotia S. and Gupta M.N. In: **73<sup>rd</sup> Annual meeting of Society of Biological Chemists (India)** Pantanagar, Nov. 21-24, 2004.
19. Smart macroaffinity ligands in aqueous two phase systems, Teotia S. and Gupta M.N., In: **73<sup>rd</sup> Annual meeting of Society of Biological Chemists (India)** Pantnagar, Nov. 21-24, 2004.
20. Attended **National Workshop on Soft Computing, Machine Learning and Bioinformatics Applications** from Nov. 17-19, 2004 organized by Department of Computer Science, Jamia Millia Islamia, Jamia Nagar, New Delhi.
21. Purification strategies for enzymes from thermophiles; Roy I., Sharma S., Sharma A., Teotia S. and Gupta M. N. In: **International Conference on Biology and Biotechnology of Thermophilic Microbes**, University of Delhi South Campus, New Delhi, Dec. 3-7, 2001.
22. Bioseparation of  $\alpha$ -amylases on magnetic alginate beads; Teotia S. and Gupta M.N. In: Proceedings of the **2<sup>nd</sup> conference "Magnetic separations in Biosciences and Biotechnologies"** (Safarik, I., Safarikova, M., Eds.), Ceske Budejovice, Sept. 14-15, 1999, pp. 22-26.
23. Seminar on Accreditation of Clinical Laboratories held at India International Centre, New Delhi from Feb. 28, 1998.
24. Participated in **XII<sup>th</sup> Annual Conference of the Academy on Women and Environment & Environment and Toxicology** at India International Centre, New Delhi from Dec 29-31, 1997.
25. Participated in **Industry - Institute meet on Biomedical Instrumentation and Technology** sponsored by Science and Technology at Indian Institute of Sciences, Bangalore from Aug. 11-12, 1996.

### **Workshop/ Training/ Professional Experience**

1. Participated in **Yamuna Awareness campaign: Lab to land initiative** of Shivaji College, University of Delhi organized in collaboration with **CDMS,GG IP University under University Innovation Project SHC 203** "Biochemical Assessment of Toxic Heavy Metals in Bacterial Strain growing in the polluted Water : A step towards Bioremediation" on **June 9,2014**.
2. **Bioconvergence: The Science Carnival** organized by Department of Biochemistry, Botany and Chemistry, Shivaji College, University of Delhi from March 26-27, 2014.
3. **Bioinformatics Workshop for Life Sciences Faculty-DU** organized by Sri Venkateswara college, University of Delhi, Dhaula Kuan, New Delhi from July 27-30, 2011.

4. **Seminar cum Workshop: Frontiers in Structural Bioinformatics** organized by Bio-Medical Informatics Centre, Department of Biophysics, AIIMS, New Delhi from June 23-25, 2011.
5. Attended workshop on **Hands on Training on Cell & Molecular Biology Tools and Techniques** organized by National Centre for Human Genome Studies & Research, Punjab University, Chandigarh from March 21-26, 2011.
6. BIOTIKOS'11- **Workshop on Impact of Biotechnology** on Man and Environment organized by TERI University, New Delhi on March 10, 2011.
7. Workshop on **NANO-HPLC: Theory and Practice** organized by Institute of Research & Development, Gujarat Forensic Sciences University, Gandhinagar on January 24, 2011.
8. Hands on training on **Tissue Microarray (TMA)** organized by Institute of Pathology (IOP) in association with **Alphelys. Sas France & Lucent Biomedical**, India from June 8-9, 2010.
9. National Workshop on **Molecular Cytogenetics: Cancer (SOLID TISSUE) Cytogenetics by FISH** organized by Department of Reproductive Biology, All India Institute of Medical Sciences (AIIMS) from August 27-29, 2009.
10. National Summer School on **Molecular Cell Biology** organized by Department of Biochemistry, Sri Venkateswara College, University of Delhi from May 11-16, 2009.
11. Attended Hands on Workshop in Biotechnology and successfully completed course on Basic Microbiology & Recombinant DNA Techniques (Module I) from Aristogene Biosciences Pvt. Ltd. (www.aristogene.com), Bangalore from Oct. 9-15, 2006.
12. Served as **Consultant Biochemist in Pathology Lab.**, G.M. Modi Hospital & Research Centre for Medical Sciences, Mandhir Marg, Saket, New Delhi from August 20, 2001 to May 31, 2004.
13. Diploma in System Management (DSM) - 1992 & SWIFT INDIA - 2000 course from National Institute of Information Technology (NIIT).
14. Diploma in Applications of Lotus, dBase III and WORDSTAR (packages) from Management Information Technology and Education (MITE), Agra.
15. Worked on UV Spectrophotometer, GC, HPLC, ELISA, Graphite Furnance Atomic Absorption Spectrophotometer, Coulter ACT<sup>8</sup> and Arterial Blood Gas Analyser.

## Research Project

Title	Period [in years & month(s)]	Total Grant (Rs.)	Name of Sponsoring/ Funding Agency
<b>Minor Project</b> : Biochemical assessment of toxic heavy metals in bacterial strain growing in the polluted water: A step towards bioremediation	Dec. 2013 – Nov. 2014	Rs 5 00 000/-	University Innovation Project (SHC 203) University of Delhi

## **Gyanodaya IV (College on Wheels, Topic : Urbanization- Now and Then) of University of Delhi**

Accompanied Shivaji College students in Gyanodaya IV as **MENTOR** of the Project entitled “*Impact of Urbanization on Research and Technology*” from March 12- 19, 2014. During this educational trip was also given the responsibility of **COACH CO-ORDINATOR**.

## **National Workshop/International Conference as Co-convenor: 3**

1. National Workshop on **RNAomics: Isolation to Inference** from October 25-29, 2010 organized by Department of Biochemistry, **Shivaji College, University of Delhi**, Raja Garden, New Delhi.
2. International Conference on **Science, Spirituality and Humanity: Transcending Discipline Barriers** (Co-convenor of Science) organized by **Shivaji College, University of Delhi** in association with National Institute of Disaster Management (NIDM) and Department of Philosophy, University of Delhi from February 17-19, 2011 Conference Centre, University of Delhi.

## **Awards/ others**

1. **Best Poster Award** on topic entitled “Epilepsy: Etiology and Symptoms, Management: Focussing on the elderly patients” in **Epicon-2014** from Oct 30-Nov. 1, 2014 organized by Khalsa College, University of Delhi
2. **Best Paper Presentation award** in **IC-Life 2014**, International Conference on Life Sciences, Informatics, Food and environment organized by Jaypee Institute of Information & Technology, Noida on “ Microbial Fuel Cell: Harnessing green energy from Yamuna water”.
3. **Woman Scientists Scheme (SR/WOS-A/LS-181/2007)** of Department of Science & Technology (DST) **for Research in Basic/Applied Sciences**, project titled “Three Phase Partitioning for Selective Permeation of Microbial Cells”.
4. **Young Scientist Award of DST** (under SERC FAST Track Scheme for Young Scientists 2001-02; project titled “Applications of free bio ligands in two phase separations of enzymes and cells”).
5. **Senior Research Associate (Pool Officer) of Council of Scientific and Industrial Research (CSIR)** (Pool no. 7446 A) from May 10, 1999 to May 09, 2002.
6. Selected for **Women Commission (WSES)**, Batch no. 2 (1992) for Food Scientist in Army Supply Core, Indian Army.

## **Society Memberships**

1. **Indian Association of Science Congress** (Life Member).
2. **Society for Biological Chemists** (Indian Institute of Sciences, Bangalore, India).
3. **Association of Physiologists & Pharmacologists** of India (Dept. of Physiology, AIIMS, NEW DELHI).

**Dr. Sunita Singh**