

**Prof. Meryam Sardar**

Department of Biosciences, Jamia Millia Islamia,

New Delhi - 110025

**Email :** msardar@jmi.ac.in, dr.meryam@gmail.com**Research Interest:** Applied Enzymology and green synthesis of nanoparticles for their application in human health, Wastewater treatment, Antibiotic resistance.***Educational Qualification***

1998	<b>Ph. D.</b> Indian Institute of Technology, Delhi.
	<b>Thesis Title</b> , “Applications of reversibly soluble insoluble polymers in bioseparation and enzyme immobilization”
1991	<b>M.Sc.</b> , Biotechnology, Aligarh Muslim University, Aligarh.
1989	<b>B.Sc. (Hons)</b> , Chemistry, Aligarh Muslim University, Aligarh.

**CURRENT APPOINTMENT**

- Working as Professor in the Department of Biosciences, Jamia Millia Islamia, New Delhi-110025 (from March 2013 - till date).

**PREVIOUS APPOINTMENTS**

Position	Institute	Period
Reader	Department of Biosciences, JMI	Feb 2006-2009
Young Scientist (Principal Investigator)	Department of Science and Technology Sponsored Project. Indian Institute of Technology (IIT), New Delhi	Nov. 2004-Feb 2006
Senior Research Associate	Council of Scientific Industrial Research (CSIR) sponsored research project, Indian Institute of Technology (IIT), New Delhi	August 2001-August 2004
Lecturer	Department of Biochemistry, Hamdard University, New Delhi	November 1998-March, 2001
Project Scientist	Department of Biotechnology sponsored research project, Indian Institute of Technology (IIT), New Delhi	April 1998-October 1998

## **Administrative Responsibilities**

- **Hony. Director**

Deen Dayal Upadhyay Kaushal Kendra, Jamia Millia Islamia, New Delhi-25 (from Jan 2020- May 2023)

## **PUBLICATIONS AND PRESENTATIONS**

### ***Papers Published in refereed journals***

1. Alam, D., Khan, T., Naaz, F., Ahmad, T., Shahid, M., Hassan, M. I., ... & **Sardar, M.** (2024). Delineating the effect of trehalose nanoparticles on aggregation pattern of apo- $\alpha$ -lactalbumin protein: A nano-approach towards counteracting proteinopathies. *Journal of Molecular Liquids*, 126746.
2. Singh, S., Khan, S., Shahid, M., **Sardar, M.**, Hassan, M. I., & Islam, A. (2024). Targeting Tau in Alzheimer's and Beyond: Insights into Pathology and Therapeutic Strategies. *Ageing Research Reviews*, 102639.
3. JA Mazumder, A Ahmad, J Ali, R Noori, T Bhuyan, **M Sardar**, D Sheehan, 2024, Biomimetic green synthesis of ZnO nanoflowers using  $\alpha$ -amylase: from antimicrobial to toxicological evaluation, *Scientific Reports* 14 (1), 16566.
4. Noori, R., Bano, N., Ahmad, S., Mirza, K., Mazumder, J. A., Perwez, M., ... & **Sardar, M.** (2024). Microbial Biofilm Inhibition Using Magnetic Cross-Linked Polyphenol Oxidase Aggregates. *ACS Applied Bio Materials*.
5. Ali, J., Faridi, S., Kashyap, A., Noori, R., & **Sardar, M.** (2024). Surface expression of carbonic anhydrase on E. coli as a sustainable approach for enzymatic CO<sub>2</sub> capture. *Enzyme and Microbial Technology*, 176, 110422.
6. Noori, R., Ali, J., Mirza, K. and **Sardar, M.**, 2023. Nanoparticles Mimicking Oxidase Activity and their Application in Synthesis of Neurodegenerative Therapeutic Drug L-DOPA. *Chemistry Select*, 8(5), p.e202203808.
7. Ali, J., Faridi, S. and **Sardar, M.**, 2023. Carbonic anhydrase as a tool to mitigate global warming. *Environmental Science and Pollution Research*, pp.1-20.
8. Alam, D., Naaz, F., Islam, A., **Sardar, M.** and Ahmad, T., 2023. Role of Sugar

Osmolytes and their nano-counterparts as Inhibitors in Protein Fibrillation. *Journal of Molecular Liquids*, p.122479.

9. Mirza, Kainat, Farha Naaz, Tokeer Ahmad, Nikhat Manzoor, and **Meryam Sardar**. 2023. "Development of Cost-Effective, Ecofriendly Selenium Nanoparticle-Functionalized Cotton Fabric for Antimicrobial and Antibiofilm Activity" *Fermentation* 9, no. 1: 18. <https://doi.org/10.3390/fermentation9010018>.
10. Noori, R., Perwez, M., Mazumder, J. A., Ali, J., & **Sardar, M.** (2022). Bio-imprinted magnetic cross-linked polyphenol oxidase aggregates for enhanced synthesis of L-dopa, a neurodegenerative therapeutic drug. *International Journal of Biological Macromolecules*.
11. Noori R, **Sardar M.** An outlook on potential protein targets of COVID-19 as a druggable site. *Mol Biol Rep*. 2022 Nov;49(11):10729-10748. doi: 10.1007/s11033-022-07724-3. Epub 2022 Jul 6. PMID: 35790657; PMCID: PMC9256362.
12. Husain, S., Verma, S.K., Hemlata, M Azam, **Sardar M**, Haq, Q.M.R., Fatma, T.(2021) Antibacterial efficacy of facile cyanobacterial silver nanoparticles inferred by antioxidant mechanism Materials Science and Engineering C, 2021, 122, 111888, **IF: 5.88**
13. Gupta, M.N., Perwez, M., **Sardar, M.** (2020) Protein crosslinking: Uses in chemistry, biology and biotechnology Biocatalysis and Biotransformation, 38(3), pp. 178–201. **IF: 1.8.**
14. Noori, R., Perwez, M., Mazumder, J. A., & **Sardar, M.** (2020). Development of low-cost paper-based biosensor of polyphenol oxidase for detection of phenolic contaminants in water and clinical samples. *Environmental Science and Pollution Research*, 27, 30081-30092.**IF: 3.05**
15. SW Fatima, S Barua, **M Sardar**, SK Khare (2020). Immobilization of Transglutaminase on multi-walled carbon nanotubes and its application as bioinspired hydrogel scaffolds *International Journal of Biological Macromolecules* 163, 1747-1758. **IF. 5.16**
16. Khatoon, N., Alam, H., & **Sardar, M.** (2020). Proteomics Analysis of Escherichia coli Treated with Nanosilver: An Approach to Analyze the Bactericidal Action. *Current Proteomics*, 17(5), 404-412.**IF: 0.7**
17. Phul, R., Khan, M. A., **Sardar, M.**, Ahmed, J., & Ahmad, T. (2020). Multifunctional electrochemical properties of synthesized non-precious iron oxide nanostructures. *Crystals*, 10(9), 751.**IF: 2.4**
18. Alam, H., Khatoon, N., Khan, M. A., Husain, S. A., Saravanan, M., & **Sardar, M.** (2020).

Synthesis of Selenium Nanoparticles Using Probiotic Bacteria Lactobacillus acidophilus and Their Enhanced Antimicrobial Activity Against Resistant Bacteria. Journal of Cluster Science, 31(5), 1003-1011. **IF: 1.73**

19. Phul, R., Perwez, M., Ahmed, J., **Sardar, M.**, M Alshehri, S., Alhokbany, N., & Ahmad, T. (2020). Efficient multifunctional catalytic and sensing properties of synthesized ruthenium oxide nanoparticles. *Catalysts*, 10(7), 780.**IF: 3.5**
20. Mazumder, J. A., Khan, E., Perwez, M., Gupta, M., Kumar, S., Raza, K., & **Sardar, M.** (2020). Exposure of biosynthesized nanoscale ZnO to Brassica juncea crop plant: Morphological, biochemical and molecular aspects. *Scientific Reports*, 10(1), 1-13.**IF: 3.99**
21. Ali, J., Mazumder, J. A., Perwez, M., & **Sardar, M.** (2020). Antimicrobial effect of ZnO nanoparticles synthesized by different methods against food borne pathogens and phytopathogens. *Materials Today: Proceedings*. Volume 36, Part 3, 2021, Pages 609-615.
22. Alam, H., Khatoon, N., Khan, M.A., Husain, S.A., Saravanan, M. and **Sardar, M.**, 2019. Synthesis of Selenium Nanoparticles Using Probiotic Bacteria Lactobacillus acidophilus and Their Enhanced Antimicrobial Activity Against Resistant Bacteria. *Journal of Cluster Science*, pp.1-9.**IF: 1.30**
23. Perwez, M., Mazumder, J. A., & **Sardar, M.** (2019). Preparation and characterization of reusable magnetic combi-CLEA of cellulase and hemicellulase. *Enzyme and Microbial Technology*, 131, 109389.**IF: 3.5**
24. Khatoon, N., Sharma, Y., **Sardar, M.**, & Manzoor, N. (2019). Mode of action and anti-Candida activity of Artemisia annua mediated-synthesized silver nanoparticles. *Journal de mycologie medicale*. Volume 29, Issue 3, September 2019, Pages 201-209. **IF: 1.56**.
25. Phul, R., Shrivastava, V., Farooq, U., **Sardar, M.**, Kalam, A., Al-Sehemi, A. G., & Ahmad, T. (2019). One pot synthesis and surface modification of mesoporous iron oxide nanoparticles. *Nano-Structures & Nano-Objects*, 19, 100343.
26. Mazumder, J. A., Perwez, M., Noori, R., & **Sardar, M.** (2019). Development of sustainable and reusable silver nanoparticle-coated glass for the treatment of contaminated water. *Environmental Science and Pollution Research*, 1-12.**IF: 3.05**

- 27.** Khatoon, N., Alam, H., Khan, A., Raza, K., & **Sardar, M.** (2019). Ampicillin silver Nanoformulations against Multidrug resistant bacteria. *Scientific reports*, 9(1), 6848.**IF: 3.99**
- 28.** Alam, H., Khatoon, N., Raza, M., Ghosh, P. C., & **Sardar, M.** (2019). Synthesis and characterization of nano selenium using plant biomolecules and their potential applications. *BioNanoScience*, 9(1), 96-104.**IF: 0.92**
- 29.** Mazumder, J. A., Khatoon, N., Batra, P., &**Sardar, M.** (2018). Biosynthesized Silver Nanoparticles for Orthodontic Applications. *Advanced Science, Engineering and Medicine*, 10(12), 1169-1173. **IF: 0.98**
- 30.** Mir, I. A., Alam, H., Priyadarshini, E., Meena, R., Rawat, K., Rajamani, P., **Sardar, M** & Bohidar, H. B. (2018). Antimicrobial and biocompatibility of highly fluorescent ZnSe core and ZnSe@ ZnS core-shell quantum dots. *Journal of Nanoparticle Research*, 20(7), 174.**IF: 2.127**
- 31.** Praveen, A., Khan, E., Pervez, M., **Sardar, M.**, & Gupta, M. (2018). Iron Oxide Nanoparticles as Nano-adsorbents: A Possible Way to Reduce Arsenic Phytotoxicity in Indian Mustard Plant (*Brassica juncea L.*). *Journal of Plant Growth Regulation*, 37(2), 612-624.**IF: 2.047**
32. Khatoon, N, Alam. H and **Sardar M.**(2018). Removal of toxic contaminants from water by sustainable Green synthesized silver nanoparticles. *IET Nanobiotechnology*, (In press).**IF: 2.059**.
- 33.** Ahmad, T., Phul, R., Khatoon, N., &**Sardar, M.** (2017). Antibacterial efficacy of *Ocimum sanctum* leaf extract-treated iron oxide nanoparticles. *New Journal of Chemistry*, 41(5), 2055-2061.**IF: 3.277**
34. Khatoon, N., & **Sardar, M.** (2017). Efficient Removal of Toxic Textile Dyes using Silver Nanocomposites. *J Nanosci Curr Res*, 2(113), 2.
- 35.** Pervez, M., Ahmad, R. and **Sardar, M.**, 2017. A Reusable Multipurpose Magnetic Nanobiocatalyst for Industrial Applications. *International Journal of Biological Macromolecules*. **IF: 3.909**
36. Khatoon N, Mazumder JA, **Sardar M** (2017) Biotechnological Applications of Green Synthesized Silver Nanoparticles. *J Nanosci Curr Res* 2: 107. **ISSN- 2356-749X (Print); 2314-6931 (Online)**

- 37.** Mazumder, J.A., Ahmad, R. and **Sardar, M.**, 2016. Reusable magnetic nanobiocatalyst for synthesis of silver and gold nanoparticles. "International Journal of Biological Macromolecules", 93, pp.66-74. ",**ISSN: 0141-8130**(Web of Science indexed)PubMed ID: 27581559.**IF: 3.909**
- 38.** Batra, P., Mushtaq, A., Mazumder, J. and **Sardar, M.** Nanoparticles and their Applications in Orthodontics"Advances in Dentistry & Oral Health",2016; 2(2): 555584. DOI: 10.19080/ADOH.2016.01.555584**ISSN: 2472-6389**
- 39.** Anjum, Uzma, **Sardar, M.** , et al. "Nanoparticle Synthesis and Oxygen Anion Diffusion in Double Perovskite GdBaCo<sub>2-x</sub>FexO<sub>5+δ</sub> Electrodes for SOFC." ECS Transactions 72.7 (2016): 111-116.
- 40.** Mishra, A., Ahmad, R., Perwez, M., &**Sardar, M.** (2016). Reusable Green Synthesized Biomimetic Magnetic Nanoparticles for Glucose and H<sub>2</sub>O<sub>2</sub> Detection. BioNanoScience, 6(2), 93-102.
- 41.** Husain, S., **Sardar, M.**, & Fatma, T. (2015). Screening of cyanobacterial extracts for synthesis of silver nanoparticles. World Journal of Microbiology and Biotechnology, 31(8), 1279-1283.**ISSN: 0959-3993. IF: 2.1**
- 42.** Khatoon, N., Ahmad, R., & Sardar, M. (2015). Robust and fluorescent silver nanoparticles using *Artemisia annua*: biosynthesis, characterization and antibacterial activity. Biochemical engineering journal, 102, 91-97. **IF: 3.1**
- 43.** Khatoon, N., Mishra, A., Alam, H., Manzoor, N., &**Sardar, M.** (2015). Biosynthesis, characterization, and antifungal activity of the silver nanoparticles against pathogenic *Candida* species. BioNanoScience, 5(2), 65-74.
- 44.** Mishra, A., Singh, P., &**Sardar, M.** (2015). Peroxidase assisted biosynthesis of silver and gold nanoparticles: Characterization and computational study. Advanced Materials Letters, 6, 194-200.**IF: 1.46**
- 45.** Mishra, A., &**Sardar, M.** (2015). Cellulase assisted synthesis of nano-silver and gold: Application as immobilization matrix for biocatalysis. International journal of biological Macromolecules, 77, 105-113.**IF: 3.909**
- 46.** Mishra A, Ahmad R, &**Sardar M** (2015) Biosynthesized iron oxide nanoparticles mimicking peroxidase activity: Application for biocatalysis and biosensing. *Journal of Nanoengineering and Nanomanufacturing*, 5, 1-6

- 47.** Ahmad, R., Mohsin, M., Ahmad, T., &**Sardar, M.** (2015). Alpha amylase assisted Synthesis of TiO<sub>2</sub>Nanoparticles: Structural Characterization and Application as Antibacterial Agents. *Journal of hazardous materials*.283, 171-177.**IF: 6.51**
- 48.** Ahmad R, Mishra A, **Sardar M** (2014) Simultaneous Immobilization and Refolding of Heat Treated Enzyme on TiO<sub>2</sub> nanoparticles. Advanced Science, Engineering and Medicine. 6, 1-5
- 49.** Ahmad, R., &**Sardar, M.** (2014). Immobilization of cellulase on TiO<sub>2</sub> nanoparticles by physical and covalent methods: a comparative study. Indian journal of biochemistry & biophysics, 51(4), 314-320.**IF: 0.38.**
- 50.** Mishra, A., &**Sardar, M.** (2014). Alpha Amylase Mediated Synthesis of Gold Nanoparticles and Their Application in the Reduction of Nitroaromatic Pollutants. Energy and Environment Focus,3(2), 179-184.
- 51.** Ahmad, R., Khatoon, N., &**Sardar, M.** (2014). Antibacterial Effect of Green Synthesized TiO<sub>2</sub> Nanoparticles. *Advanced Science Letters*, 20(7-9), 1616-1620.
- 52.** Pandey, C., Khan, E., Mishra, A., **Sardar, M.**,& Gupta, M. (2014). Silver Nanoparticles and Its Effect on Seed Germination and Physiology in *Brassica juncea* L. (Indian Mustard) Plant. *Advanced Science Letters*, 20(7-9), 1673-1676.
- 53.** Ahmad, R., Khatoon, N., &**Sardar, M.** (2013). Biosynthesis, Characterization and Application Of TiO<sub>2</sub> Nanoparticles In Biocatalysis And Protein Folding. *Journal of Proteins & Proteomics*, 4(2), 115-121.
- 54.** Mishra A, Kaushik NK, **Sardar M** and Sahal D (2013) Evaluation of antiplasmodial activity of green synthesized silver nanoparticles. *Colloids Surf B: Biointerfaces*.111, 713-718.**IF: 3.88**
- 55.** Mishra A and **Sardar M** (2013) Rapid Biosynthesis of Silver Nanoparticles Using Sugarcane Bagasse-An Industrial Waste. *J. Nanoeng. Nanomanuf.* 3, 217-219.
- 56.** Ahmad R and **Sardar M** (2013). Treatment of Industrial Textile Dye Waste Water by TiO<sub>2</sub>Nanobioconjugates. International Journal of Environmental Research and Development.3(3), 7-10.
- 57.** Mishra A and **Sardar M.** (2013) Removal of phenols from aqueous solutions using Spent Mushroom Substrate. International Journal of Applied Engineering Research. 8 (10), 27-31.

58. Ahmad R and **Sardar M** (2013). TiO<sub>2</sub> nanoparticles as an antibacterial agent against *E. coli*. International Journal of Innovative Research in Science, Engineering and Technology. 2(8),3569-3574.
59. Ahmad R, Mishra A and **Sardar M** (2013). Peroxidase-TiO<sub>2</sub>nanobioconjugates for the removal of Phenols and dyes from aqueous solutions. Advanced Science, Engineering and Medicine. 5(10),1020-1025
- 60.** Mishra A,AhmadR, Singh V, Gupta MNand **Sardar M**(2013).Preparation, Characterization and BiocatalyticActivity of a Nanoconjugate of Alpha Amylase and Silver Nanoparticles. *J. Nanosci. Nanotechnol.* 13:5028-5033.**IF: 1.354**
- 61.** Singh M, Kumar D, Yusuf MA, **Sardar M** and Sarin NB (2013). Effects of wild-type and α-tocopherol-enriched transgenic *Brassica juncea* on the components of xenobiotic metabolism, antioxidant status, and oxidative stress in the liver of mice. *Transgenic Res.*22(4):813-22. **IF: 2.341**
- 62.** Kumar, D., Yusuf, M. A., Singh, P., **Sardar, M.**, & Sarin, N. B. (2013). Modulation of antioxidant machinery in α-tocopherol-enriched transgenic Brassica juncea plants tolerant to abiotic stress conditions. *Protoplasma*, 250(5), 1079-1089. PubMed PMID: 23361901.**IF: 2.457**
63. Mishra A and**Sardar M**(2012).Alpha amylase mediated synthesis of silver nanoparticles. *Science of Advanced Material.*4:143-146. **IF:1.31**
- 64.** Mishra A, Mehdi SJ, Irshad M, Ali A, **Sardar MandRizvi MMA**(2012).Effect of Biologically Synthesized Silver Nanoparticles on Human Cancer Cells. *Science of Advanced Material.* 4:1200-1206. **IF:1.31**
- 65.** Aparna A, **Sardar Mand** Dinkar S. Synergy with Rifampicin and kanamycin enhances potency, kill kinetics and selectivity of de novo designed antimicrobial peptides. *Antimicrobial agents and chemotherapy*. (2010). 54:1693-1699.**IF:4.30**
- 66.** **Sardar M**,Varandani D, Mehta BR and Gupta MN.Affinity Directed assembly of multilayers of Pectinase. *Biocat. Biotrans.*(2008). 26, 1-8. **IF: 0.836**
- 67.** **Sardar M**,Sharma A and Gupta MN. Refolding of a denatured alpha chymotrypsin and its smart bioonjugate by Three phase partitioning. *Biocat. Biotrans.*(2007).25:92-97.**IF: 0.836**

- 68.** Sardar M and Gupta MN. Immobilization of Tomato pectinase on Con A-Seralose 4B by affinity layering. *Enzymes and Microbial Technology*(2005).37:355-59.**IF:2.9**
69. Roy I, Sardar M and Gupta MN. Crosslinked alginate guar-gum beads as affinity media for purification of jacalin. *Biochem. Eng. J.* (2005).23:193-198.
70. Roy I, Sardar M and Gupta MN. Evaluation of smart bioconjugate of pectinase for chitin hydrolysis. *Biochem. Eng. J.* (2003).16:329-335.
71. Roy I, Sardar M and Gupta MN. Hydrolysis of chitin by pectinex. *Enzymes and Microbial Technology*. (2003).32:582-588.
72. Sardar M, Roy I and Gupta MN. A smart bioconjugate of alginate and pectinase with unusual biological activity towards chitosan. *Biotech Prog.*(2003).19:1654 – 1658.
73. Sardar M, Roy I and Gupta MN. Simultaneous purification and immobilization of *A. niger*xylanase on the reversibly soluble polymer Eudragit L-100. *Enzymes and Microbial Technology*,(2000).27: 672-679.
74. Roy I, Sardar M and Gupta MN. Exploiting unusual affinity of usual polysaccharides for separation of enzymes in fluidized bed mode. *Enzymes and Microbial Technology*.(2000).27: 53-65.
75. Sardar M and Gupta MN. Alginate as an affinity material for alpha amylases. *Bioseparation*,(1998). 7: 159-165.
76. Sardar M, Agarwal R, Kumar A, and Gupta MN. Noncovalentimmobilization of enzymes on an enteric polymer Eudragit S-100. *Enzymes and Microbial Technology*, (1997). 20: 361-367.
77. Tyagi R, Kumar A, Sardar M, Kumar S and Gupta MN. Chitosan as an affinity macroligand for precipitation of N- acetylglucosamine binding proteins/enzymes. *Isolation and Purification*,(1996).2: 217-226.

### **Book Chapters**

1. Ali, J., Alam, D., Noori, R., Faridi, S., & **Sardar, M.** (2024). Metal Nanoparticles: Management and Control of Phytopathogenic Fungi. In *Advances in Antifungal Drug Development: Natural Products with Antifungal Potential* (pp. 411-437). Singapore: Springer Nature Singapore.
2. Mirza, K., Alam, D., & **Sardar, M.** (2024). Phytosynthesized Nanoparticles: Antifungal Activity and Mode of Action. In *Advances in Antifungal Drug Development: Natural Products with Antifungal Potential* (pp. 439-470). Singapore: Springer Nature Singapore.
3. **Sardar M**, Mirza K (2023) Affinity immobilization and affinity layers. In: María Luján Ferreira (ed), Foundations and Frontiers in Enzymology, Biocatalyst Immobilization, Academic Press, Pages 269-290, ISBN 9780323913171.
4. **Sardar M**, Majumdar J (2021) Microbial synthesis of Nanoparticles and their applications.In: Gupta MN, Khare SK, Sinha R (eds), Interfaces between nanomaterials and microbes.CRC Press, ebook ISBN: 9780429321269.
5. Noori, R., Ahmad, R., & **Sardar, M.** (2020). Nanobiosensor in Health Sector: The Milestones Achieved and Future Prospects. In: Mohsin, Mohd., Naz, Ruphi, Ahmad, Altaf (eds.), Nanobiosensors for Agricultural, Medical and Environmental Applications (pp. 63-90). Springer, Singapore.
6. Shabnam, Pervez, M., Mazumder, J. A., & **Sardar, M.** (2020). Phytonanotechnology: A new horizon for the food industry. In: N. Thajuddin, Silvy Mathew, (eds). Phytonanotechnology Challenges and Prospects (pp. 221-244). Elsevier.
7. Noori R., Pervez M., **Sardar M.** (2019) Cross-linked Enzyme Aggregates: Current Developments and Applications. In: Husain Q., Ullah M. (eds) Biocatalysis. Springer, Cham. [https://doi.org/10.1007/978-3-030-25023-2\\_5](https://doi.org/10.1007/978-3-030-25023-2_5).
8. **Sardar, M.**, & Mazumder, J. A. (2019). Biomolecules assisted synthesis of metal nanoparticles. In: Nandita Dasgupta, Shivendu Ranjan, Eric Lichtfouse (eds), Environmental Nanotechnology Vol 2, (pp. 1-23). Springer.
9. **Sardar, M.** Alam, H (2018). Green and Sustainable Selenium Nanoparticles and Their Biotechnological Applications. In: Shakel Ahmed and Chaudhery Mustansar Hussain (eds), , Green and sustainable Advanced Materials, 333-354, Scrivener Publishing LLC.
10. **Sardar, M.** Mohammad, P, Razi, A, Mukherjee, J, Gupta MN(2017). Immobilization of enzymes on magnetic nanoparticles. In: Nanotechnology. H.S. Nalwa (eds), Encyclopedia of Nanoscience and Volume 28, Pages 1-30, American Scientific publisher.

11. **Sardar, M.** Mishra, A (2015). Isolation of Genomic DNA by Silane-Modified Iron Oxide Nanoparticles. In: Bhupinder Singh et.al (eds). Nanotechnology: Novel Perspectives and Prospects .Mc Graw Hill Education, India, New Delhi. (2015), 311-317.
12. **Sardar, M.,** Mishra, A., & Ahmad, R. (2014). Biosynthesis of Metal Nanoparticles and Their Applications. In: Ashutosh Tiwari and Anthony P.F. Turner (eds.) *Biosensors Nanotechnology*, 239-266. John Wiley & Sons, Inc.
13. Singh V, **Sardar M**, Gupta MN (2013). Immobilization of enzymes by bioaffinity layering. In: Guisan JM (eds). *Methods Mol Biol.* 1051:129-37. Humana Press.

**PhD supervision:**

	<b>supervised</b>	<b>Co-supervised</b>
<b>Awarded</b>	<b>10</b>	<b>02</b>
<b>Ongoing</b>	<b>06</b>	<b>0</b>

**Projects guided at Postgraduate (Masters) Level: - 60**

**Research Projects Completed:**

Sr. No.	Title of the Project	Funding Agency	Amount	Date of sanction and duration
1.	Reactivation strategies by unfolding/refolding of inactivated immobilized enzymes.	Department of Science and Technology (DST)	Rs. 10,87,000	19.11.2004. to 18.11.2007.
2.	Peroxidase conjugate of TiO <sub>2</sub> nanoparticles for the removal of phenols from aqueous solutions.	UGC	Rs 13,39,183/-	01-05-2009 to 30-04-2012
3.	(Co- supervisor) Evaluation of hypoglyceamic compounds from Cyanobacteria	CCRUM	Rs 25,00,000/-	30-06-2009 to 31-05-2011
4	Biosynthesized silver Nanoparticles as antimicrobial agents against water borne pathogenic bacteria	Indian Council of Medical research, Govt. Of India	Rs. 27,57,750/-	03.05.2015-03.06.2018

**Ongoing research projects (funded by ICMR):**

Project ID	Title	Grant amount	Start Date	Duration of project
ICMR (EM/Dev/SG/142/3709/2023)	Combinatorial effects of nanocomposite and antibiotics against multi-drug resistant bacterial biofilms in wound infections	52.91 Lac	26.2.2024	Three years