




Faculty Details proforma for DU Web-site

Title	Dr.	First Name	Rani	Last Name	Gupta	Photograph
Designation		Professor				
Address		Department of Microbiology, University of Delhi, South Campus				
Phone No	Office	011-24157165				
Residence	Mobile	-				
		9971711806				
Email	Web-Page	rani.gupta@south.du.ac.in -				
Educational Qualifications						
Degree		Institution			Year	
Ph.D. (Botany)		University of Delhi			1983	
M. Phil		University of Delhi			1979	
M.Sc		University of Delhi			1978	
B.Sc		University of Delhi			1976	
Career Profile						
Organisation / Institution			Designation	Duration	Role	
Department of Microbiology, University of Delhi South Campus, New Delhi.			Professor	1988-till date	Research & Teaching	
Various colleges of University of Delhi.			Assistant Professor	1983- 88	Research & Teaching	
Department of Biochemical Engineering and Biotechnology, I.I.T., New Delhi. Senior			Senior Associate	1997-1998	Research	
Administrative Assignments						
<ul style="list-style-type: none"> • External expert for Institutional Biosafety Committee (IBSC) at IIT, Delhi • Member Governing Committee of University colleges • Chairperson of Governing Committee, Geetanjali Hostel, UDSC 						
Areas of Interest / Specialization						
<ul style="list-style-type: none"> • Microbial enzymes of industrial applications: Developing process for cost effective fermentation and downstream processing • Cloning and expression of industrially useful enzymes 						

- Protein engineering for improving biocatalytic properties of enzymes
- Immobilization of enzymes and their use in biotransformations

Subjects Taught

Microbial Physiology and Metabolism, Prokaryotic and eukaryotic diversity, Practical aspects of techniques used in biochemistry and enzymology

Publication Profile (last 3 years)

1. Syal, P., Verma, V.V., Gupta, R. (2017). Targeted mutations and MD simulations of a methanol-stable lipase YLIP9 from *Yarrowia lipolytica* MSR80 to develop a biodiesel enzyme. *International Journal of Biological Macromolecules*, 104(Part A): 78-88. doi: 10.1016/j.ijbiomac.2017.06.003
2. Kumari, S., Pal, R.K., Gupta, R., Goel, M. (2017). High Resolution X-ray Diffraction Dataset for *Bacillus licheniformis* Gamma Glutamyl Transpeptidase-acivicin complex: SUMO-Tag Renders High Expression and Solubility. *The Protein Journal*, 36(1), 7-16. doi: 10.1007/s10930-017-9693-2
3. Bindal, S., Sharma, S., Singh, T.P., Gupta R. (2017). Evolving transpeptidase and hydrolytic variants of γ -glutamyl transpeptidase from *Bacillus licheniformis* by targeted mutations of conserved residue Arg109 and their biotechnological relevance. *Journal of Biotechnology*, 249, 82-90. doi: 10.1016/j.jbiotec.2017.03.034
4. Bindal, S., Gupta, R. (2017). Hyperproduction of γ -glutamyl transpeptidase from *Bacillus licheniformis* ER15 in the presence of high salt concentration. *Preparative Biochemistry and Biotechnology*, 47(2), 163-172. doi: 10.1080/10826068.2016.1188314
5. Saini, M., Bindal, S., Gupta, R. (2017). Heterologous expression of γ -glutamyl transpeptidase from *Bacillus atrophaeus* GS-16 and its application in the synthesis of γ -D-glutamyl-L-tryptophan, a known immunomodulatory peptide. *Enzyme Microbiology and Technology*, 99, 67-76. doi: 10.1016/j.enzmictec.2017.01.003
6. Syal, P., Gupta, R. (2017). Heterologous expression of lipases YLIP4, YLIP5, YLIP7, YLIP13 and YLIP15 from *Yarrowia lipolytica* MSR80 in *E. coli*: Substrate specificity, kinetic comparison and enantioselectivity. *Biotechnology and Applied Biochemistry*. doi:10.1002/bab.1542
7. Bindal, S., Gupta, R. (2016). Thermo- and salt-tolerant chitosan cross-linked γ -glutamyl transpeptidase from *Bacillus licheniformis* ER15. *International Journal of Biological Macromolecules*, 91, 544-553. doi: 10.1016/j.ijbiomac.2016.05.106
8. Singh, Y., Gupta, N., Verma, V.V., Goel, M., Gupta, R. (2016). Selective disruption of disulphide bonds lowered activation energy and improved catalytic efficiency in TALipB from *Trichosporon asahii* MSR54: MD simulations revealed flexible lid and extended substrate binding area in the mutant. *Biochemical and Biophysical Research Communications*, 472(1), 223-30. doi: 10.1016/j.bbrc.2016.01.189
9. Singh, Y., Gupta, R. (2015). Novel S-enantioselective lipase TALipB from *Trichosporon asahii* MSR54: Heterologous expression, characterization, conformational stability and homology modelling. *Enzyme and Microbial Technology*, 83, 29-39. doi: 10.1016/j.enzmictec.2015.11.003

10. Syal, P., Gupta, R. (2015). Cloning, Expression, and Biochemical Characterization of an Enantioselective Lipase, YLIP9, from *Yarrowia lipolytica* MSR80. *Applied Biochemistry and Biotechnology*, 176(1), 110-124. doi: 10.1007/s12010-015-1561-y
11. Gupta, R., Kumari, A., Syal, P., Singh, Y. (2015). Molecular and functional diversity of yeast and fungal lipases: Their role in biotechnology and cellular physiology. *Progress in Lipid Research*, 57, 40-54. doi: 10.1016/j.plipres.2014.12.001
12. Arti, A., Baronian, K., Kunze, G., Gupta, R. (2015). Extracellular expression of YLip11 with a native signal peptide from *Yarrowia lipolytica* MSR80 in three different yeast hosts. *Protein expression and purification*, 110,138-14. doi: 10.1016/j.pep.2015.02.016
13. Verma, V.V., Gupta, R., Goel, M. (2015). Phylogenetic and evolutionary analysis of functional divergence among Gamma glutamyl transpeptidase (GGT) subfamilies. *Biology Direct*, 14, 10:49. doi: 10.1186/s13062-015-0080-7.
14. Kumari, A., Gupta, R. (2014). Functional characterisation of novel enantioselective lipase TALipA from *Trichosporon asahii* MSR54: sequence comparison revealed new signature sequence AXSXG among yeast lipases. *Applied Biochemistry and Biotechnology*, 175(1), 360-71. doi: 10.1007/s12010-014-1268-5
15. Bindal, S., Gupta, R. (2014). L-Theanine synthesis using γ -glutamyl transpeptidase from *Bacillus licheniformis* ER-15. *Journal of Agricultural and Food Chemistry*, 62(37), 9151– 9159. doi: 10.1021/jf5022913
16. Kumari, A., Gupta, R. (2014). Functional characterization of a novel aspartic acid rich lipase, TALipC, from *Trichosporon asahii* MSR54: Solvent-dependent enantio inversion during esterification of 1-phenylethanol. *Biotechnology Letters*, 37(1), 121-130. 10.1007/s10529-014-1648-5
17. Kumari, A., Gupta, R. (2014). Novel strategy of using methyl esters as slow release methanol source during lipase expression by mut+ *Pichia pastoris* X33. *PLoS ONE*, 9(8), e104272. doi:10.1371/journal.pone.010 427

Conference Organization/ Presentations (in the last three years)

- Association of Microbiologists of India, Guwahati, November 24-27, 2016
- OMICS International 7th Indo-Global Summit and Expo on Food & Beverages, New Delhi, October 2015
- Bioworld 2014: Protein Structure and Function, IIT Delhi, 12-14th December 2014
- National Conference on Application of the derivatives of chitin and chitosan, Gandhigram, Tamil Nadu, August 22nd-23rd, 2014

Awards and Distinctions

- National Associateship of DBT, Government of India (1997)

Association With Professional Bodies
<ul style="list-style-type: none">• Association of Microbiologists of India, AMI (Life Member)• The Society of Microbiologists of Delhi (Life member)